WESTERN INDUSTRY

Electronics is one of the West's newest and highly important industries. High-power transmitting vacuum tubes being evacuated.

Twenty-Five Cents VOLUME IX NUMBER 10 October, 1944

...ow LEPEL INDUCTION HEATING UNITS WILL SAVE TIME AND MONEY IN YOUR PLANT

We are delighted to announce that the Lepel High Frequency Laboratories, Inc., pioneers in the induction heating field, have appointed us exclusive distributors of their proved and increasingly more widely employed high frequency brazing and heating apparatus.

The application possibilities are literally unlimited. If you are presently interested in learning more about the economies of induction hardening, annealing, brazing or soldering, have us mail to you a well-written and adequately illustrated booklet.

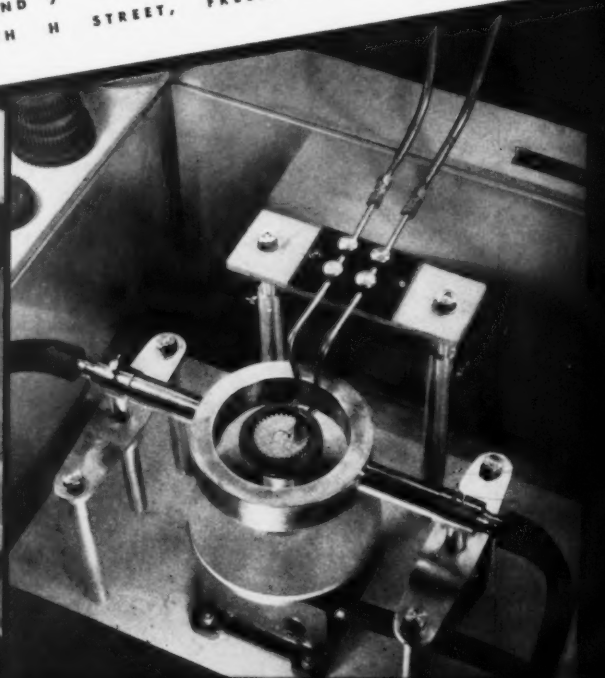
Now You Can Do In Seconds What Previously Required Minutes

VICTOR EQUIPMENT COMPANY

844 FOLSOM STREET, SAN FRANCISCO 7 — 3821 SANTA FE AVENUE, LOS ANGELES 11
312 — 12TH STREET, OAKLAND 7 — 148 WEST E STREET, SAN DIEGO 1
251 NORTH H STREET, FRESNO 3

VICTOR

AD 87

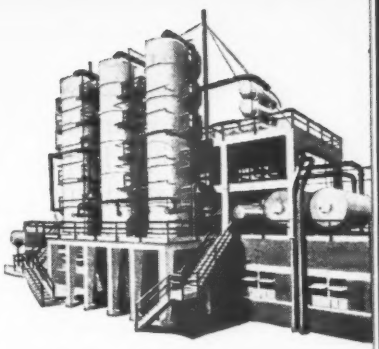


FOR THE FIGHTER . . . AND HIS DREAM!

The fighter must have something to fight for as well as something to fight with. It is industry's task to back him with weapons today and tools tomorrow.

Blaw-Knox makes its own long list of war weapons, as well as basic equipment to aid other manufacturers in their war efforts. When the international reconstruction program begins, Blaw-Knox will supply a wide range of equipment to speed it. Blaw-Knox leads in many fields. For example: rolls, mills and other essentials for the ferrous and non-ferrous industries . . . highly specialized fabricated products for railroads, public utilities, the electronic and construction industry and industry in general. For the chemical and process industries Blaw-Knox produces all types of equipment, even complete plant units.

Whatever your plans perhaps Blaw-Knox products and services can be useful to you. Let us discuss it at your convenience.



A typical example of Blaw-Knox design and construction for the Chemical and Process Industry.

BLAW-KNOX COMPANY

A Pacemaker for American Initiative and Ingenuity

Farmers Bank Bldg., Pittsburgh, Pa.

Buy More War Bonds and Stamps

LEWIS FOUNDRY & MACHINE DIVISION, Rolls and Rolling Mill Machinery

NATIONAL ALLOY STEEL DIVISION, Heat and Corrosion-Resistant Alloy Castings

SPECIAL ORDNANCE DIVISION, Bofors Anti-Aircraft Gun Mounts and Mechanisms

PITTSBURGH ROLLS DIVISION, Rolls for Steel and Non-Ferrous Rolling Mills

POWER PIPING DIVISION, Prefabricated Piping Systems

BLAW-KNOX DIVISION, Chemical & Process Plants & Equipment, Construction Equipment, Steel Plant Equipment, Radio & Transmission Towers . . . General Industrial Products

COLUMBUS DIVISION, Ordnance Matériel

UNION STEEL CASTINGS DIVISION, Steel and Alloy Castings

MARTINS FERRY DIVISION, Bofors Anti-Aircraft Gun Mounts

BLAW-KNOX SPRINKLER DIVISION, Automatic Sprinklers and Deluge Systems

Five Blaw-Knox Plants have been awarded the Army-Navy "E" for war-production excellence

A FEW VICTORY PRODUCTS

ANTI-AIRCRAFT GUN MOUNTS · GUN SLIDES · LANDING BARGES · AERIAL BOMBS · POWDER PLANTS · PIPING FOR NAVAL VESSELS · SYNTHETIC RUBBER PLANTS
CAST ARMOR FOR TANKS & NAVAL CONSTRUCTION · CHEMICAL PLANTS

FORGINGS VS. CASTINGS

The Decision Goes to FORGINGS

FORGINGS AND CASTINGS each have their place in this world of Steel, but where maximum strength, ability to stand unusual stress, and minimum metal bulk are the main considerations, engineers universally decide on forgings.

Forging refines and improves metals —increases density thereby giving added strength and toughness to material—reduces dead weight—results in unusual freedom from concealed defects. These all add up to greater strength, conservation of material and time, surety of long uninterrupted service and usually an actual reduction in cost.

We operate the largest forging plant in the West—our equipment is modern and adequate—the plant is fully equipped for heat treatment. We maintain a Metallurgical Department to serve our customers in the most scientific manner. If you have any application in which forgings can be used to better advantage and at less cost, let us quote and show you the decided advantages and savings of "AMERICAN" forgings.

SINCE 1888 AFCO

Fifty-Six Years of
FORGING EXPERIENCE
together with modern and adequate equipment, are offered to the mining, oil, lumber, marine and industrial fields by the American Forge Co. specializing in

GRINDING MEDIA
GRINDING BALLS
STAMP MILL SHOES & DIES
GRINDING SLUGS & MILL RODS

FORGINGS FOR
MILL ROLLS
DIESEL ENGINES
TURBINES
GEARS & PINIONS
MARINE & INDUSTRIAL SHAFTING
PIPE FLANGES

PRESS FORGED BARS & BILLETS

DROP FORGINGS

FORGINGS MADE TO CUSTOMERS' SPECIFICATIONS

AMERICAN FORGE COMPANY
BERKELEY, CALIFORNIA

EDITORIAL COMMENT

ndustry Needs Financial Watchdogs

WE ARE getting uncomfortably close, not only to the end of the war with Germany, but also to the inevitable investiations of war expenditures. Then we will be able to contemplate he bliss, not only of the Four Freedoms, but also of the Fifth reedom—the privilege of paying through the nose for an unelievable amount of unnecessary wastage. Not the errors of udgment to which any honest and sincere participant in the war ffort may be liable, but the carelessness, heedlessness and indifference of people who don't have to pay directly for the destruction nd loss they cause.

For example, we are reliably informed that when the Army bandoned one of its training camps near Corvallis, Oregon, the arracks were all torn down, the lumber (No. 1 in the shortage ist of materials) burned and large quantities of gasoline destroyed. his lumber burning goes on elsewhere around Army stations—round Oakland, for example. Again, a friend of ours retrieved 00 pounds of copper out of a camp dump heap which he sold o a scrap metal dealer for $7. These are microscopic trifles in comparison with the unavoidable war costs, but the investigations will urn up countless similar incidents, to say nothing of squanderings hat will run into many millions of dollars.

Now, who is to blame for all this? Congressional investigating committees will pin it on one individual or another—the Army, WPB or some other governmental body. But we, the American public, individually and collectively, are the real culprits, because we demand so little from our government.

As long as the government played a comparatively minor part in our economic life, the need for efficiency was not so great. When the government has become an industrial super-giant, however, owning a large part of the nation's productive facilities, as it is today, the need becomes vital. If the U. S. Chamber of Commerce or the N.A.M.—or both—would set up investigating departments to keep everlastingly on the trail of the government, the investment would be paid back manyfold in the form of less taxes.

Tsk! Tsk! Those Politicians!

PREDICTIONS in our July issue that politicians would be making fearful and wonderful promises and warnings this fall regarding the future of our Western industrial empire are already being fulfilled.

Senator Pepper tours the Coast insisting that Western industrial development will shrivel up if the Republicans win, because hydroelectric plants will revert to private control and freight rates be established that will favor the East. The Republican candidate for U. S. Senator from California protests that the cutting down on war contracts must not touch the West, despite the fact that many of the voters to whom he is appealing are afraid the West will be kept on war contracts while the rest of the country is getting a head start on civilian production.

And now the Department of Justice, personified by Attorney General Biddle and his assistant Wendell Berge, dash out to the West to tell us we are being throttled by Wall Street cartels or their dimly seen sponsors, the Nazis. On top of it comes Candidate Dewey, also bent on rescuing the West.

Quite likely we have missed the most brilliant gems of campaign oratory that are being flashed before the ought-to-be-dazzled voters. No candidate for office should be stumped by such small matters as finding markets overnight for our aluminum, magnesium and steel plants, or converting shipyards and aircraft assembly plants into factories that are sold up for two years ahead.

WESTERN INDUSTRY

CONTENTS FOR OCTOBER, 1944

Editorial Comment	5
Spotlight on the News	25
Train Salesmen Now for Western Postwar Selling	27-31
Quality Control in Magnesium Alloy Aircraft Castings	32-34
Unloading—Speeded Up by New Western Ideas	35-36
Timm Glider Case Is a Guide to Western Surplus Disposals	40
Future Sketched for Richmond Shipyards	42
Washington Correspondence	44-47
Westerners at Work	48-51
Pabco Employees Pull Down Accident Rate	52
West Coast Automobile Possibilities	54
Regional Reviews—Columbia Empire	56-57
Regional Reviews—Tehachepi to Tijuana	60-61
Efficiency Kinks	62-63
Adding Adhesiveness to Synthetic Rubber	64
Business Books	66
The Western Outlook—News and Statistics	68-69
Opportunity Section	70
The West on Its Way	71-77
Western Trade Winds	78
The Showcase	79-80
Yours for the Asking	81-82
Advertisers' Index	82

OUR COVER PICTURE

For reasons of national security, the remarkable development on the Pacific Coast in electronics has not been given publicity commensurate with its importance. In recent months still greater production demands have been made on these plants. The cover photograph was taken at the plant of Eitel-McCullough, Inc., in San Bruno, California, showing plates being heated by electronic bombardment to liberate the last traces of gas.

CCA

Member Controlled Circulation Audit

25c PER COPY $2.00 PER YEAR

Published by King Publications
503 MARKET STREET SAN FRANCISCO 5, CALIF.

A. C. PRENDERGAST, *Editor*

Washington Office: ARNOLD KRUCKMAN, Associate Editor, 1120 Vermont Ave., N.W., Washington 5, Telephone: DIstrict 8822.

Los Angeles Office: JACK O. HODGES, Southern California Editor and District Manager, 479 South Holt Avenue, Los Angeles 36, Telephone: BRadshaw 2-3935.

Chicago Office: A. C. PETERSEN, District Manager, 5833 S. Spaulding Avenue, Chicago 29, Telephone: PRospect 1685.

Copyright 1944 by King Publications

Here's a grease especially developed to protect exposed gears!

Exposed gears often present a tough problem in lubrication. For example, the main travel gears of the giant Whirly cranes used in shipyards undergo such great pressures that ordinary greases quickly break down and fail completely. In fact, several West Coast shipyards were unable to keep grease on these gears for any practical period of time until they tried Gearite – Union Oil Company's unusual gear lubricant.

Gearite was laboratory designed to resist pressure displacement and efficiently lubricate exposed gears. It will not harden and flake off – or wash away in the presence of water. During periods of machinery idleness, it retains all its normal characteristics and does not become dry or brittle. It does not throw off at high gear speeds.

In addition, Gearite is easy to apply. Because of its special solvent, Gearite requires no heating. It can be applied by any method – drip-cup, direct pouring, spray gun, or ordinary paintbrush. The solvent then evaporates, leaving a smooth coating of lubricant sufficient to cushion pressures and prevent metal-to-metal contact under the toughest conditions.

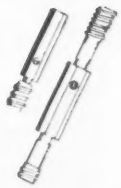
To aid you in checking grease supply on your gears, Gearite has purposely been made black. You can see at a glance whether there is still grease coverage or if it is time to renew the coating.

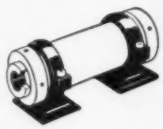
For adequate protection and thorough lubrication of exposed gear teeth, you cannot buy a better grease than Gearite.

To get a supply, phone your local Union Oil representative, or write Union Oil Company, 617 W. Seventh Street, Los Angeles 14, Calif.

GEARITE

"GO!"





For Bullseyes on the Battlefield

American artillery, one of the mightiest weapons of modern warfare, is blasting the enemy on all the world's battlefronts. Behind its devastating accuracy stand our highly trained gunners who know how to use the scientific gunsights, range finders and other precision instruments with which they are equipped. This combination of human skill plus Yankee industrial achievement is rapidly bringing the day of victory nearer.

Precision manufacturing methods are responsible for the technical excellence of our military weapons. Insuring the accuracy of their many individual components is the important job Kobe Master and Reference gages are doing today. For, after gaging each vital part, it's the inspector's "GO" or "NO GO" which determines the future performance of our fighting equipment.

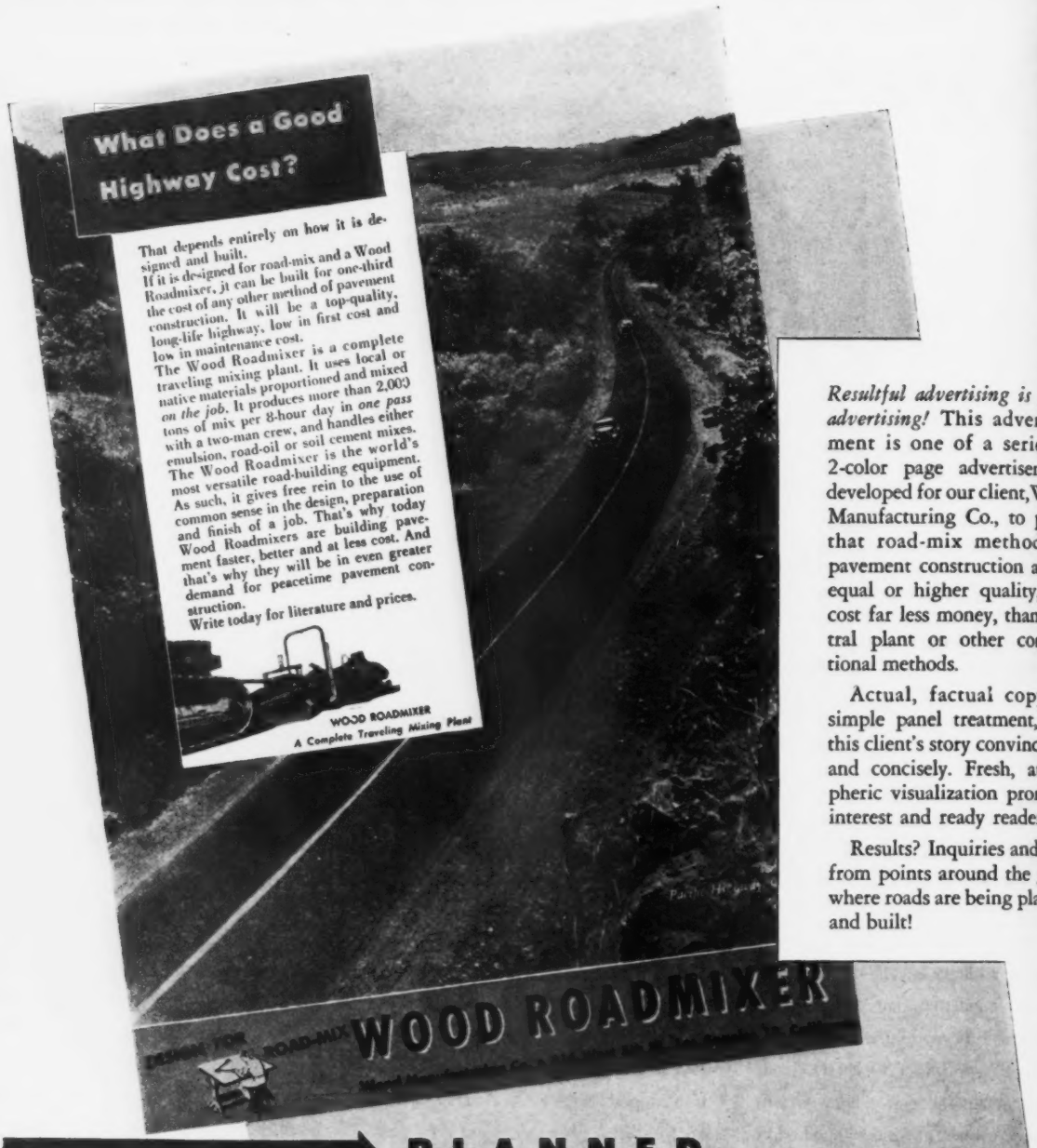
Kobe gages, both standard and special types, are now being used on hundreds of critical manufacturing operations. Because of their uniform standards of accuracy, shop experts rely on them wherever the most exact tolerances must be followed. Scientific production methods and special tests on master gaging instruments give Kobe gages a perfection never before possible. This quality, developed through wartime experience, will offer valuable advantages to America's peacetime industries.

KOBE

Master and Reference GAGES

KOBE, INCORPORATED

3040 East Slauson Avenue • Huntington Park, California


What Does a Good Highway Cost?
That depends entirely on how it is designed and built.
If it is designed for road-mix and a Wood Roadmixer, it can be built for one-third the cost of any other method of pavement construction. It will be a top-quality, long-life highway, low in first cost and low in maintenance cost.
The Wood Roadmixer is a complete traveling mixing plant. It uses local or native materials proportioned and mixed on the job. It produces more than 2,000 tons of mix per 8-hour day in one pass with a two-man crew, and handles either emulsion, road-oil or soil cement mixes.
The Wood Roadmixer is the world's most versatile road-building equipment. As such, it gives free rein to the use of common sense in the design, preparation and finish of a job. That's why today Wood Roadmixers are building pavement faster, better and at less cost. And that's why they will be in even greater demand for peacetime pavement construction.
Write today for literature and prices.
WOOD ROADMIXER
A Complete Traveling Mixing Plant
WOOD ROADMIXER

Resultful advertising is good advertising! This advertisement is one of a series of 2-color page advertisements developed for our client, Wood Manufacturing Co., to prove that road-mix methods of pavement construction are of equal or higher quality, and cost far less money, than central plant or other conventional methods.

Actual, factual copy, in simple panel treatment, tells this client's story convincingly and concisely. Fresh, atmospheric visualization promotes interest and ready readership.

Results? Inquiries and sales from points around the globe where roads are being planned and built!

PLANNED

PREPARED

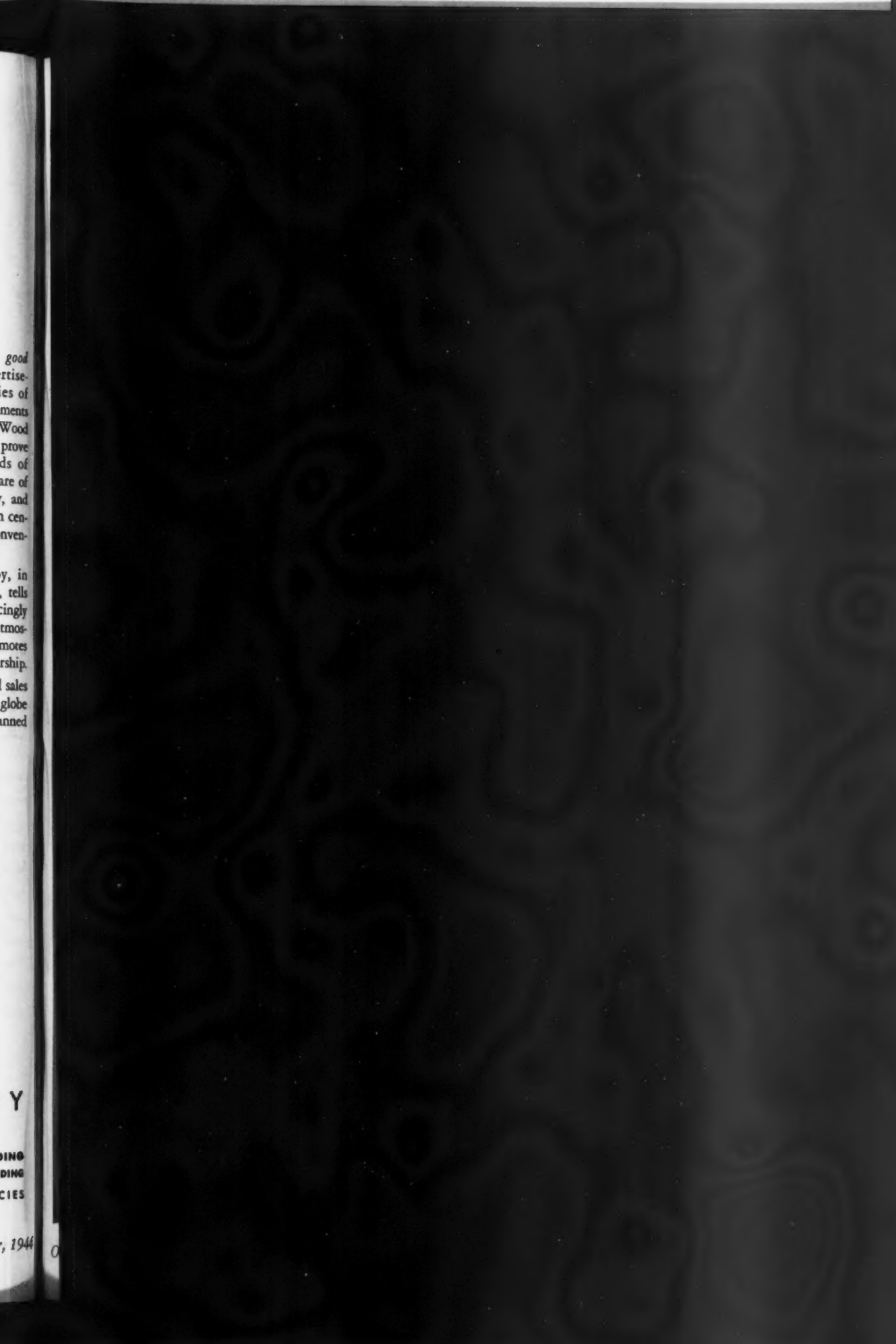
PLACED BY

Each of the four McCarty Company offices is staffed with advertising specialists whose rich experiences and wholehearted efforts are keyed to the important job of helping build industry and business through intelligent, *resultful* advertising and counsel... now and tomorrow!

THE McCARTY COMPANY

A Complete Industrial Advertising Service Since 1919

LOS ANGELES 15, BENDIX BUILDING • SAN FRANCISCO 5, RIALTO BUILDING
PITTSBURGH 19, KOPPERS BUILDING • FORT WORTH 2, DAN WAGGONER BUILDING
MEMBER...AMERICAN ASSOCIATION OF ADVERTISING AGENCIES



AMONG PLANT ENGINEERS

Because plant engineers know and appreciate the advantages of precision construction, they naturally favor machines like the Sullivan WG-9 air compressor.

Plant engineers know that the greater capacity of the WG-9, per square foot of floor area, is the direct result of precision manufacture and the judicious use of modern, lightweight alloy metals.

They know, too, that the WG-9 is the only double-acting, single-stage compressor that provides these advantages:

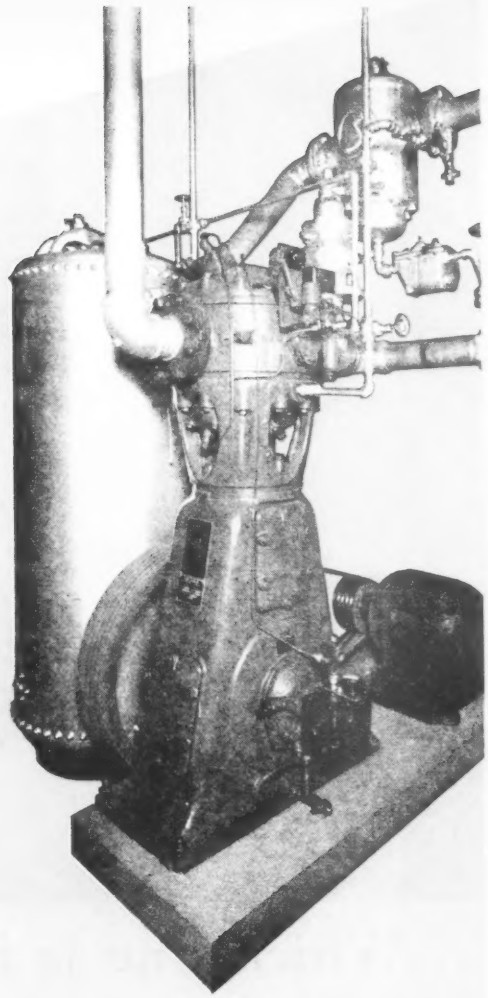
1) Full force-feed lubrication to all working parts.
2) Replaceable cylinder liners and crosshead guides.
3) "Dual-Cushion" valves.
4) Anti-friction main bearings.

There are twenty more construction features on the WG-9 that appeal to men who know machinery. Your copy of Bulletin A-43, containing complete details, is ready for you. Sullivan Machinery Company, Michigan City, Indiana. In Canada: Canadian Sullivan Machinery Co., Ltd., Dundas, Ontario.

OFFICES

Seattle	Pittsburgh	Knoxville	Butte
Boston	St. Louis	Huntington	Salt Lake City
New York	Detroit	Los Angeles	Scranton
Chicago	San Francisco	Duluth	Denver
Portland	Birmingham	El Paso	Dallas

FROM ¼ TO 3,000 H. P.



The WG-9 is designed for continuous, heavy-duty service in industries having moderate air power requirements. Available in eleven sizes, with displacements from 153 to 822 C. F. M., 30 to 150 p.s.i.

PRODUCTS

STATIONARY AND PORTABLE AIR COMPRESSORS FROM ¼ TO 3000 H. P., PNEUMATIC CASTING GRIPS, FOUNDATION BREAKERS, PORTABLE HOISTS, ROCK DRILLS.

Which One Is Forced to Waste Time?

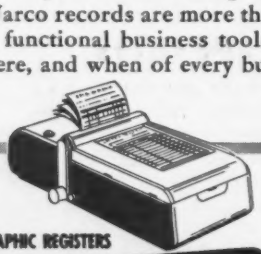
Don't blame poor Miriam because she is always involved in a carbon mess. How would you like to wrestle with ink-smearing carbon sheets . . . stuffing them in and out, in and out?

And it is such a needless procedure, now that you can get modern, up-to-date Uarco **continuous-strip** record forms. Forms that have the carbons neatly interleaved . . . eliminate time-wasting carbon fuss and bother. You'll be surprised at what that means in time-saving efficiency. For Uarco puts an end to repetitive actions by routinizing the tedious job of record keeping.

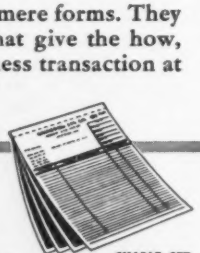
Uarco records are more than mere forms. They are functional business tools that give the how, where, and when of every business transaction at any given moment . . . keep the work moving smoothly with a minimum of trouble. Uarco records are designed either for handwritten or machine-written use. They may be carbon interleaved or non-interleaved; may be used in a Uarco Autographic Register, typewriter, billing or tabulating machine.

For over 50 years, Uarco has been supplying better record forms to business. We will consider it a pleasure to work with you on your individual record keeping problem. It will cost you nothing to have a Uarco representative call today.

UNITED AUTOGRAPHIC REGISTER COMPANY
Chicago, Cleveland, Oakland • *Offices in All Principal Cities*



AUTOGRAPHIC REGISTERS

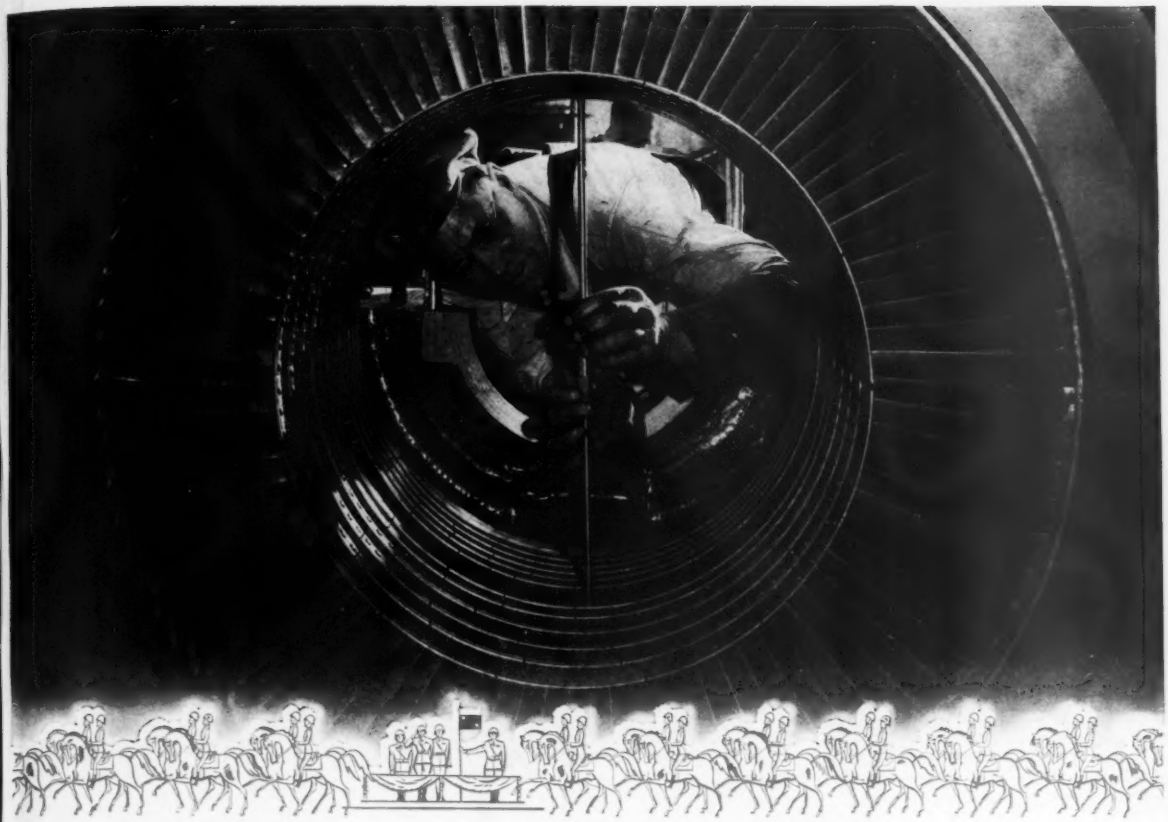


SINGLE SET FORMS

CONTINUOUS-STRIP FORMS FOR HANDWRITTEN • TYPEWRITTEN • BUSINESS MACHINE RECORDS

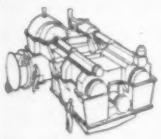
UARCO

BETTER BUSINESS RECORDS



Getting 8500 horses in step

With colors flying, every horse steps in perfect time as the cavalry passes in review—a precise procession of regimented strength. From the days of Hannibal the parading cavalry has been an example of power gained by the disciplined marshalling of each unit.



When the 8500 power horses of a Hendy turbine get their review—on the final assembly test stand—they too come through with flying colors, every one in perfect step. And their perfection, like that of the parading cavalry, is the result of painstaking work... of machining to uncompromising standards of precision by skilled craftsmen... of expert design and careful over-all planning by trained turbine engineers. Smooth, reliable operation of the whole power unit depends upon the balance, design, and precision of each intricate part.

Hendy steam turbines serving as main propulsion units for major cargo vessels are but one of the company's many precision products. There are pumps, electric motors, generators and Diesels all built to the same high standards. For mechanical, electrical or hydraulic equipment consult with your nearest Hendy office.

Shown above is an inspector "miking" the inside diameter of the low-pressure-cylinder stator rings of a Hendy 8500-hp cargo-ship turbine. To maintain the highest of standards, over 75,000 dimensional-control measurements are made during the building and assembling of these units.

DIVISIONS OF JOSHUA HENDY IRON WORKS

CROCKER-WHEELER DIVISION ... *Electric Motors & Generators*

JOSHUA HENDY DIVISION ... *Steam Turbines, Diesels, Gears*

ANY HENDY OFFICE IS READY TO SERVE YOU

JOSHUA HENDY IRON WORKS

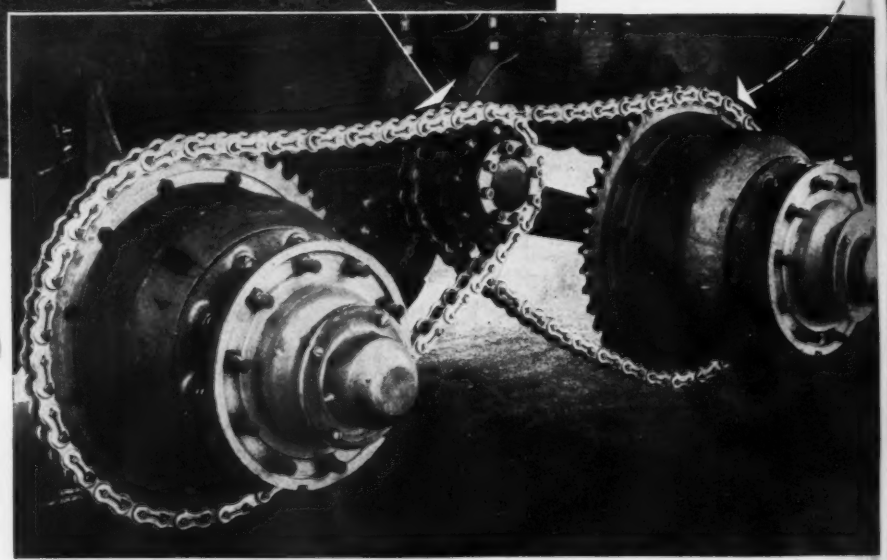
ESTABLISHED 1854

SUNNYVALE, CALIFORNIA

Branch Offices: BOSTON · BUFFALO · CHICAGO · CINCINNATI · CLEVELAND · DETROIT · HOUSTON
LOS ANGELES · NEW YORK · PHILADELPHIA · PITTSBURGH · SAN FRANCISCO · ST. LOUIS · WASHINGTON

MODERN HUSKIES "MUSH ON!"

Hundreds of heavy duty trucks, working on the Alaska Military Highway, equipped with Cook Bros. (Los Angeles, Calif.) dual drive units, are proving the high efficiency and economy of Link-Belt Silverlink Roller Chain on heavy duty service.



TOUGH SERVICE, building highways through the Canadian wilderness! Tough on men, merciless on equipment! Only the most rugged can withstand the rigors of such operations. That's why Link-Belt Silverlink Roller Chain is used on the final drive of these trucks, as on similar equipment used by loggers, lumbermen and contractors throughout the western states.

Great strength in relation to weight, stamina to withstand shock loads, and smooth, positive, flexible operation are reasons for choosing Link-Belt Silverlink Roller Chain for a wide variety of power applications. Engineers and manufacturers should send for Link-Belt Silverlink Roller Chain data book No. 1957. Learn how you can profit through these features of Silverlink Roller Chain.

LINK-BELT COMPANY, *Pacific Division*

Seattle 4, 820 First Ave., S.; Portland 9, 1631 N.W. 14th Ave.; San Francisco 24, 400 Paul Ave.; Los Angeles 33, 1025 Harrison St.; Oakland 7, 526 Third Ave.; Spokane 8, S. 151 Lincoln St.

9569-P

LINK-BELT

THE SYMBOL OF QUALITY — LINK-BELT COMPANY

Silverlink Roller Chain

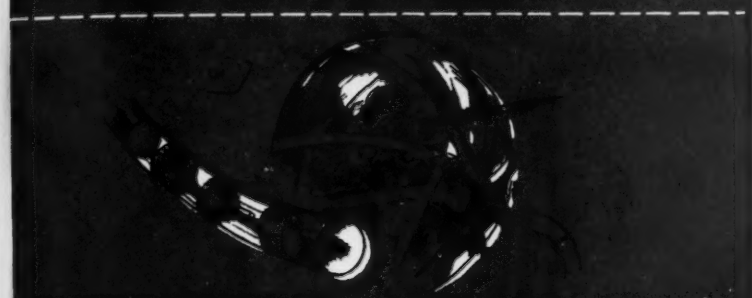
V-BELT DRIVES FROM STOCK

FOUR WAYS *to do jobs better*

(FROM ROEBLING'S 4 WIRE SPECIALIST DIVISIONS)

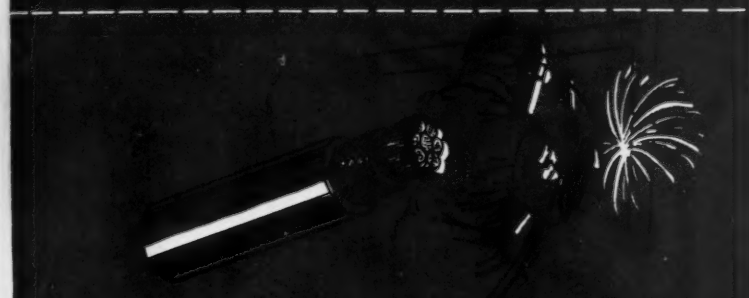
SAVE SPLICING TIME!

This Roebling method, developed for badly-needed aircraft cord assemblies, substitutes a swaged sleeve for a time-consuming splice. The resulting eye end develops the full strength of the cord, makes a big time saving. Complete assemblies may be ordered from Roebling to your specifications.



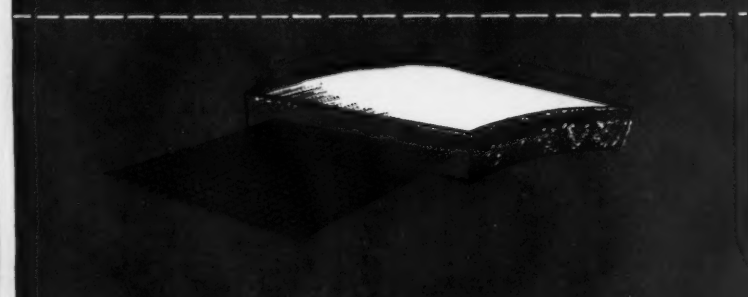
SHORT-CUT FABRICATING

of parts by getting the Roebling round, flat or shaped wires from which they can be produced by quick machining, forming, or stamping. These wires meet your specifications for analysis, temper, finish, and dimension, whether your requirements are "standard" or "special".



KEEP WELDING EFFICIENCY UP

by using Roebling Electrode Holder Cables between trailing cable and electrode holder. Flexible conductor reduces wrist fatigue, permits closer control of electrode. Recommended in damp places or where abrasion resistance is a primary need.



REINFORCE YOUR PRODUCT

with the right Roebling Woven Wire... successful in such products as brake lining, pipe and boiler covering, it may offer an idea for you. Roebling produces it in all metals, all wire diameters and mesh sizes.

ROEBLING

JOHN A. ROEBLING'S SONS COMPANY OF CALIFORNIA

San Francisco • Los Angeles • Seattle • Portland

PACEMAKER IN WIRE PRODUCTS

Wire Rope and Strand • Fittings • Electrical Wires and Cables
High and Low Carbon Acid and Basic Open Hearth Steels
Wire Cloth and Netting • Aerial Wire Rope Systems
Suspension Bridges and Cables • Round and Shaped Wire
Cold Rolled Strip • Aircord, Swaged Terminals and Assemblies

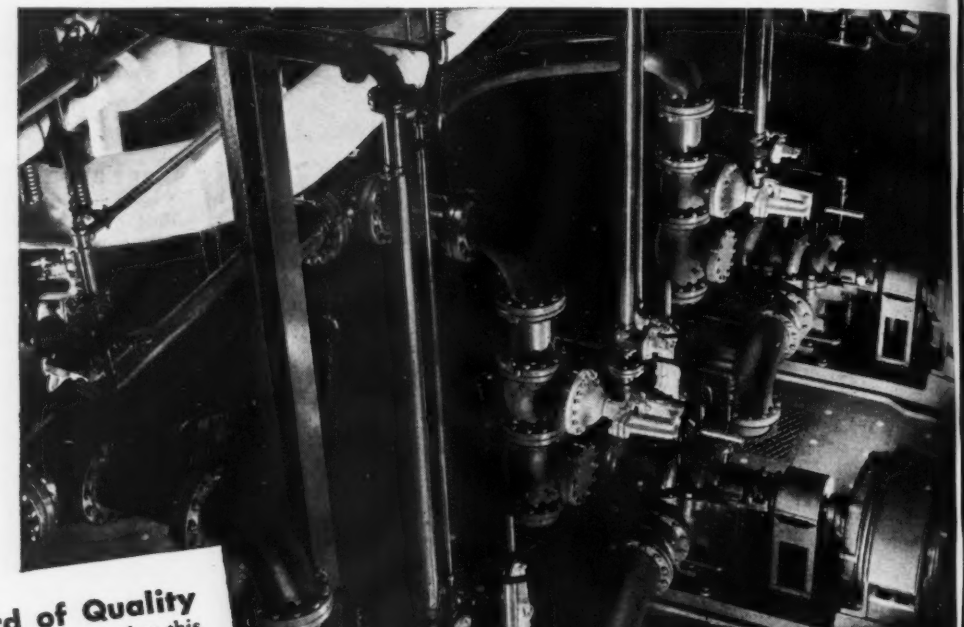
No matter what the service . . . CRANE supplies all Piping Needs

ONE SOURCE OF SUPPLY . . . ONE RESPONSIBILITY FOR ALL MATERIALS

For any power or processing installation—high, moderate, or low pressure—all your piping equipment needs can be filled at one source. Your Crane Branch supplies everything—valves, fittings, pipe, fabricated assemblies, and all piping accessories. With the world's greatest line of such materials, Crane insures proper selection for every service.

A primary factor of good installation, one responsibility for piping materials assures equal quality and craftsmanship in every part. Ordering, maintenance work, keeping of parts stocks and making replacements—all such operations are simplified when you use Crane *complete* materials service. And you're sure of getting full benefit of Crane Co.'s 89-year experience and leadership in the piping equipment field.

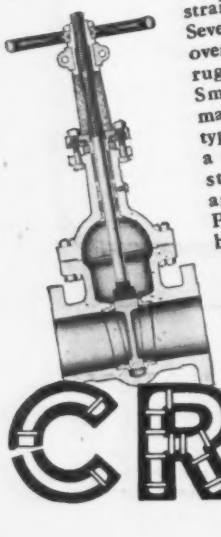
Crane Co., General Offices: 836 S. Michigan Av. Chicago 5, Illinois. *Branches and Wholesalers Serving All Industrial Areas.*



Condensate and feed-water piping in a large power plant

One Standard of Quality

Adequate quality in every part makes this entire piping system thoroughly dependable. Such quality is typified by Crane Steel Gate Valves. Finest flow behavior results from their straight-through ports. Severest line stresses are overcome by sound and rugged body castings. Smooth operation is maintained by a ball joint type stuffing box gland, a strong tee-head disc-stem connection and ample stem bearings. Positive seating is assured by extra long guide ribs.



CAST STEEL WEDGE GATE VALVES

ALL PIPING MATERIALS BY CRANE

- Gate Valves
- Globe Valves
- Check Valves
- Flanged Fittings
- Flanges
- Gaskets, Studs and Bolts
- Pipe
- Fabricated Piping
- Screwed Fittings
- Unions and Union Fittings
- Pipe Hangers and Supports
- Pipe Covering, etc.

CRANE

VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

SPEED MAINTENANCE CLEANING

the Kelite way!

Photo by American Airlines, Inc.

A soak in KELITE SUPER KETREX speeds the cleaning of aircraft pistons and many other engine parts. SUPER KETREX penetrates and loosens sludge and carbon. It's a powerful, effective cleaner, yet is completely *safe* for aluminum, magnesium and ferrous metals.

KELITE PROTEXOL mixes with solvent like soap mixes with water, removes light oils, grease and soil by spraying or wiping. It is harmless to painted surfaces as well as all metals. KELITE KDL No. 28, a sudsy-solvent cleaner developed to wipe off exhaust stains, does this specialized job amazingly well.

KELITE REGAL REMOVER strips paint, lacquer, enamel and zinc chromate with surprising speed. KELITE REMOVER, an effective stripper, does not attack metals and will not raise the grain of wood to any marked degree.

KELITE KDL No. 1 speeds hot tank cleaning of aluminum and simplifies all subsequent operations on the processed parts by cleaning thoroughly and rinsing free. KDL No. 1 reaches a pH high enough for rapid cleaning, yet it is 100% safe on aluminum.

This combination of quick action with complete safety for the surface being cleaned is a feature of the specialized materials which KELITE has developed through the application of scientific pH Control to chemical processing and cleaning. It is one of the reasons why KELITE materials are the number one choice of the aircraft industry.

To speed up your maintenance cleaning the *safe, sure* way, take advantage of the materials and methods offered by your Kelite service engineer.

Chart Copyrighted 1942, Kelite Products Inc., 909 E. 60th St., Los Angeles, 1.

KELITE

SCIENTIFIC CLEANING THROUGH pH CONTROL

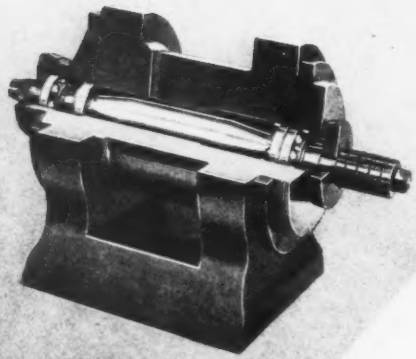
KELITE pH Control

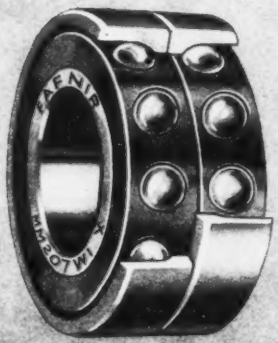
Mfg. Plants in LOS ANGELES, CHICAGO, PERTH AMBOY, HOUSTON

Western Service Offices in Seattle, Spokane, Portland, San Francisco, Berkeley, Sacramento, San Bernardino, Los Angeles, San Diego, Phoenix, Salt Lake City, Denver, El Paso, San Antonio, Fort Worth, Houston.

You'll have to
Split an Inch into Millionths

TO MEASURE THIS SHAFT'S DEFLECTION





As this shaft turns up 40,000 r.p.m. you can put your thumbnail against it and not feel motion. It will take the most sensitive of measuring devices to detect in it any deflection whatsoever — for it's mounted on two Fafnir Preloaded Pairs of X Type Extreme Precision Spindle Bearings.

Shaft rigidity like this — lasting through hundreds and thousands of operating hours on industry's high-precision tools — speaks in terms that a production man can understand. Finest possible finish at lowest possible cost. The Fafnir Bearing Company, New Britain, Connecticut.

MM200WI SERIES

Standard dimensions, precision tolerances.

MM9500 SERIES

Large-bore compact for close spacing of larger 20,000 to 30,000 r.p.m. spindles.

MM200WIX SERIES

Extreme-precision, preloaded duplex pairs, for internal grinding up to 40,000 r.p.m. and more.

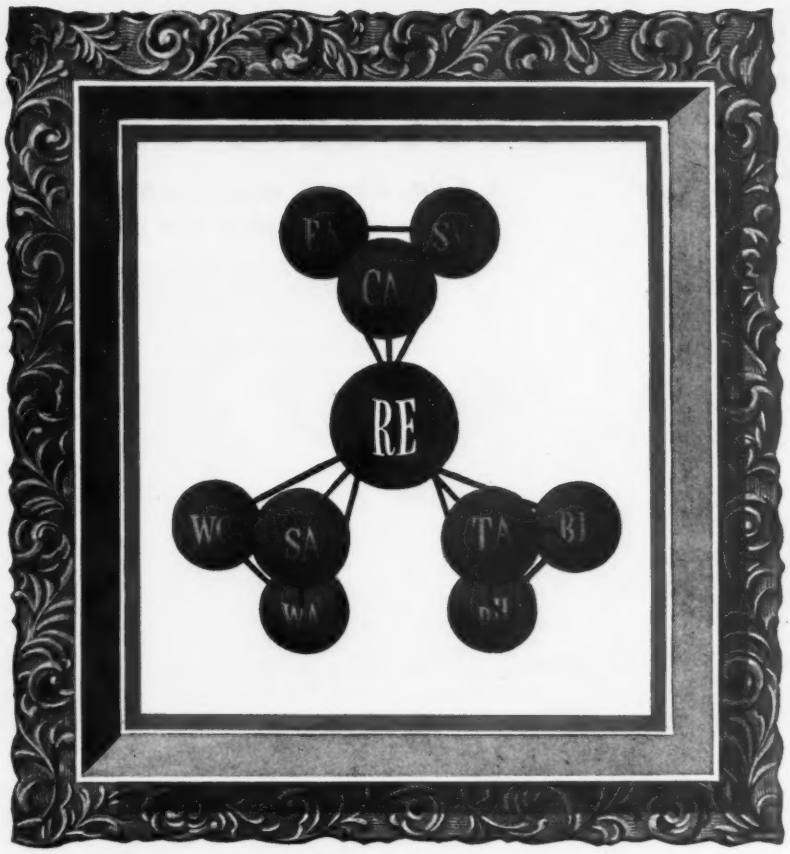
FAFNIR
Ball Bearings

THE BALANCED LINE MOST COMPLETE IN AMERICA

LOS ANGELES
1818 S. Flower Street

SAN FRANCISCO
434 Larkin Street

SEATTLE
611 East Pine Street



PORTRAIT OF THE VANISHING PAINT

Whether you're preventing paint splatter from sticking to the floor, cleaning metal before processing, or descaling equipment, this is the picture of working factors in a scientifically balanced chemical compound. It is also a soup bowl being washed. It is a hospital's floors being mopped. *It is Turco in action.*

The relative value and balance of all the factors is determined by RE; for Research and Experience are the directing agents. They assign roles, give to each agent the correct emphasis, balance them all (one factor does not insure effectiveness in a compound any more than one drug in a prescription). RE symbolizes two decades Turco laboratories have devoted to solving industry's vital problems in the conditioning, maintaining and cleaning of surfaces. Take advantage of it on everything from washing a locomotive to preparing aluminum for anodizing. Call the Turco Field Service Man, or write to Turco.

* *For a fuller explanation of these vital factors, write for Turco's "The Chemistry of Chemical Compounds," on your letterhead, please.*

- *—Emulsifying Action disperses grease and oil as tiny globules, suspends them, and prevents redeposition.*
- *—Colloidal Activity disperses solids into minute particles easily removed.*
- *—Saponifying Value is the ability to convert organic fats and oils into soluble soaps.*
- *—Total Alkalinity (or acidity) is the total amount of either available for cleaning.*
- *—Buffer Index is the ability to absorb either alkaline or acid soil to prolong solution efficiency.*
- *—A yardstick for measuring the energy of alkalinity or acidity.*
- *—Solvent Action is the ability to put soil into solution.*
- *—Wetting Action lowers surface and interfacial tensions, causing solution penetration to base surface.*
- *—Water Conditioning removes or controls the elements which cause water hardness.*
- —all the elements above are mobilized through Turco's Research and Experience.*

TURCO

INDUSTRIAL CHEMICAL COMPOUNDS

TURCO PRODUCTS, INC. *Main Office and Factory:* 6135 S. Central Avenue, Los Angeles 1 • *Southern Factory:* 1606 Henderson Street, Houston 10, Texas • *Chicago Office and Factory:* 135 West 46th Street, Chicago 9, Illinois • *Offices and Warehouses in All Principal Cities*

DRIVE MORE RIVETS PER HAMMER . . . AT LESS UPKEEP COST

with Thor **RIVET SETS and CLIPS**

A Size, Shape and Cupping for Every Type of Rugged Shop Riveting!

Specify Thor—
if you want rivet sets that are built to make your riveting hammer last longer . . . to increase its efficiency on the toughest long stroke jobs, at less cost!

Designed to fit every size and make of hammer.

All sizes and cuppings to drive every type of rivet head—button, liverpool, pan, cone or steeple.

High grade alloy steel construction.

Heat-treated for durability.

Precision-ground after heat-treating to close tolerances to fit the nozzle perfectly . . . to provide smooth, steady blows that reduce wear on the nozzle.

Specify Thor—
for the rivet set clips that are treated and finished to provide sturdy locking of the set.

Top grade spring steel construction.

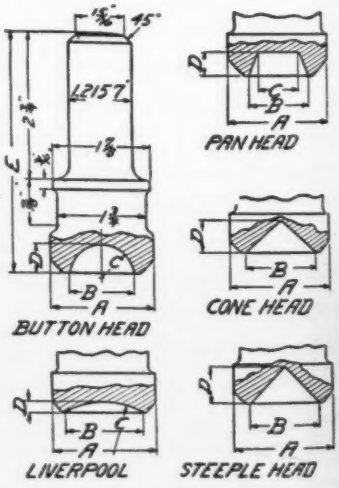
Specially heat-treated for durability.

Finished and coated against corrosion by sand-blasting that removes furnace scale, tumbling that eliminates all foreign matter, and a finishing coat of lacquer for *longer* protection.

●

Call your nearest Thor representative today or write for complete information on Thor Rivet Sets and Clips and other Thor Accessories for every type of pneumatic and electric tool.

RIVET SETS CLIP



Thor **Portable Pneumatic and Electric Tools**

INDEPENDENT PNEUMATIC TOOL COMPANY

600 W. JACKSON BOULEVARD, CHICAGO 6, ILL.

Branches in Principal Cities

6200 E. Slauson Ave., Los Angeles, Calif.
315 S. Van Ness Ave., San Francisco, Calif.
1741 First Ave., S., Seattle, Wash.
54 E. Fourth, Salt Lake City, Utah

Will you be left behind it...

by having surplus steel when reconversion starts?

Protect your competitive position by avoiding being hampered by surpluses when reconversion starts. To rely too heavily on some agency coming to your rescue may not be a sound policy. You can do certain things yourself – and without unduly risking loss of present production.

For instance, before making commitments for steels which do not fit into your reconversion plans, *check warehouse stocks.* With the exception of sheets and plates, most regular stock items are available in sufficient quantity to meet all reasonable demands.

When buying from the warehouse stock of a steel distributor, you do not have to order up to specified minimums and you are not required to make commitments for future deliveries which you may be unable to cancel. You buy only the quantity you actually need, *as you need it!*

Avoid the risk of surplus steel putting you "behind the eight ball" when reconversion starts. Check your steel requirements against warehouse stocks – and *CALL JORGENSEN FIRST!*

EARLE M. JORGENSEN CO.

STEEL

LOS ANGELES	SAN FRANCISCO	OAKLAND	HOUSTON
10510 S. Alameda	Ask Operator for	1657 Twenty-second St.	5311 Clinton Dr.
JEfferson 9121	Enterprise 10942	Higate 2030	Charter 4-1761

AIRCRAFT ALLOY STEELS · COMMERCIAL ALLOY STEELS · MILD STEEL · STAINLESS STEELS · ABRASIVE-RESISTING STEELS · COLD-FINISHED STEELS
MAYARI R HIGH TENSILE STEELS · CARBON STEELS · TOOL STEELS · MINING DRILL STEELS · BARS · BILLETS · PLATES · SHEETS · STRUCTURALS

THEY RUN "ON SCHEDULE"

PERFECT timing . . . smooth jerk-free power counts here. For this paper folding machine must be accurate to the split second . . . each cylinder perfectly co-ordinated with the next. A missed second . . . a jerk . . . and the paper is torn or creased.

It's a real job setting up a folding machine . . . getting it properly co-ordinated and timed to fold the paper correctly. And once it's done, power transmission and timing equipment must keep it that way.

Because they transmit smooth, positive, slip-free power and time operations accurately to the split-second, Baldwin roller chain belts are used here, as on so many other industrial drives and timing operations. Their ability to always run "on schedule," to absorb shocks that might otherwise damage delicate machinery . . . their ease of installation and low maintenance are big helps in keeping operating costs to a minimum.

BALDWIN ROLLER CHAIN BELTS GIVE YOU THESE ADVANTAGES:

1. Not dependent on set distances between centers for effective and proper operation.
2. No power loss regardless of adjustment.
3. Not adversely affected by dust or grease.
4. Long life—due to B-D sprocket tooth form, all-metal chain construction, and lubrication.
5. No pre-load to shorten shaft life—not installed under tension.

For complete information on Baldwin roller chain belts, call your Baldwin man or write for your copy of catalog M. Baldwin-Duckworth Division of Chain Belt Company, 352 Plainfield Street, Springfield 2, Mass.

BALDWIN

ROLLER CHAIN BELTS

They're Cutting Sanding Time 83% with SKILSAW BELT SANDERS

AT DURAMOLD DIVISION OF FAIRCHILD ENGINE AND AIRPLANE CORP.

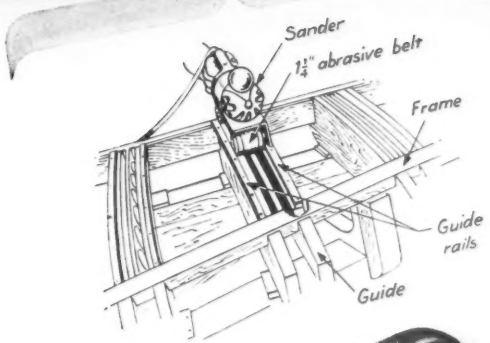
DURAMOLD Photo shows SKILSAW BELT SANDER in jig which won suggestion award for the designer, Albrecht Halbig.

A former 3 to 4 hour job for 2 men is a ONE HOUR JOB for ONE MAN with a SKILSAW BELT SANDER in a special jig

Stepping up finishing work on aircraft stabilizer frames is just one more example of how SKILSAW BELT SANDERS *do more jobs better!* In or out of a jig, on any flat and on many curved surfaces, SKILSAW BELT SANDERS do a cleaner, ripple-free finishing job faster and easier.

They pack plenty of power for round-the-clock production. They're light in weight, streamlined, handle easier in any position. And there's an extra measure of quality features in every SKILSAW BELT SANDER to give you low-cost operation longer.

If you work with wood, plywood, compositions or metal, find out the many ways SKILSAW BELT SANDERS can save time, money and manpower in your plant. Your distributor will show you on your own work. Phone him today.



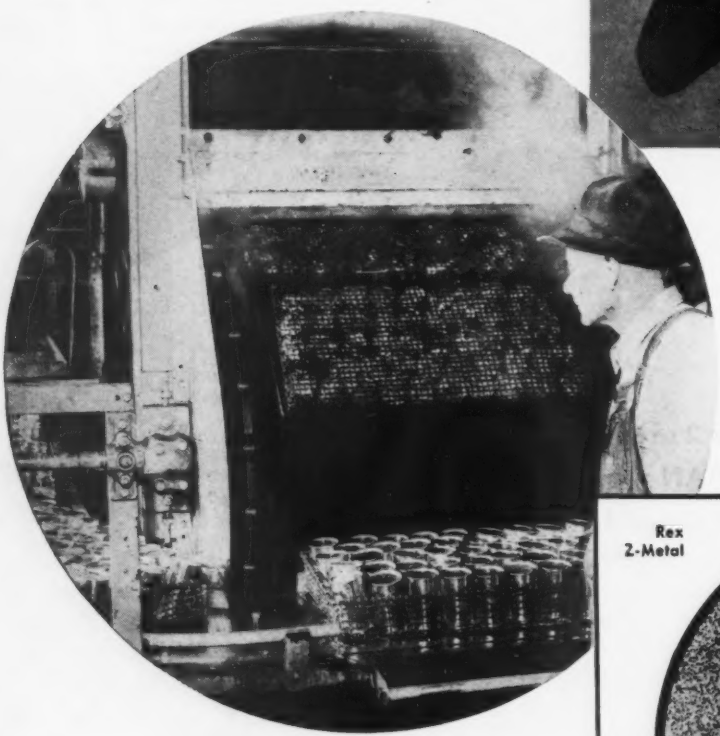
4 models, belt widths 2¼, 3 or 4½ inches

SKILSAW, INC.
4745 Winnemac Ave., Chicago 30, Ill.
FACTORY BRANCHES
2645 Santa Fe Ave., Los Angeles, Calif.
2065 Webster St., Oakland 12, Calif.
1115 E. Pike St., Seattle 22, Wash.
724 W. Burnside, Portland 9, Ore.

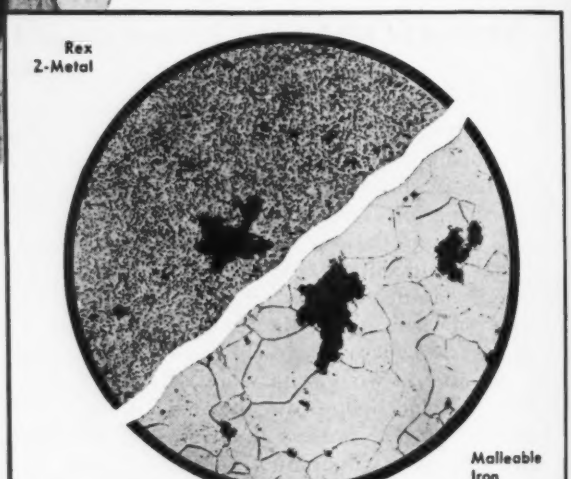
SKILSAW PORTABLE ELECTRIC TOOLS
MAKE AMERICA'S HANDS MORE PRODUCTIVE

THAT CHAIN BELT CAN TAKE IT!

❶ WORKING IN A FISH CANNERY is no snap for a chain belt. Fish scales and slime, with their damaging corrosive action, can materially shorten the life of an ordinary chain. But not Rex Z-Metal. It's built to take it . . . to operate efficiently under dirty, moist or corrosive operating conditions.



❷ TAKE THIS COOKER for example. The chain belts driving the cooker and conveying the cans are made of Rex Z-Metal. For the live steam and corrosive conditions would rapidly corrode ordinary chain. For economical, trouble-free service in canneries, bottling, packing and food processing plants, Z-Metal can't be beaten.



❸ HERE'S WHY Z-METAL IS TOUGH. This photomicrograph (200 X magnification) clearly indicates the uniformity of Z-Metal's grain structure. The small spheroidal particles in the Z-Metal are iron carbide. They and their relation to each other impart the greater strength and hardness to Rex Z-Metal.

• • •

Rex Z-Metal chain belts are the answer to many drive or conveying problems involving heavy loads or corrosive conditions. The Rex Man can help you with your chain belt application problems. And for engineering data ask for the 768-page catalog No. 444. Chain Belt Company, 1723 West Bruce Street, Milwaukee 4, Wisconsin.

REX CHAIN BELTS

More than 2000 sizes and types for the positive transmission of power, timing of operations and conveying of materials

CHAIN BELT COMPANY OF MILWAUKEE

Rex Conveying and Engineering Products Division, Rex Chain Belt and Transmission Division, Milwaukee, Wis. • Baldwin-Duckworth Chain Belt Division, Springfield, Mass., Worcester, Mass

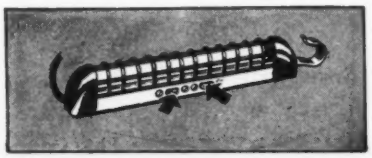
Fluorescent operating hints

No. 6 of a series by SYLVANIA for all users of fluorescent lighting

WHICH STARTER TO USE

To light a fluorescent lamp, the two cathodes should be preheated for a short interval. The circuit must then be broken to establish the lighting arc. The fluorescent starter performs this function, acting as a time-delay switch. One starter is required for each lamp in a fixture. (Research has eliminated the starter from the fluorescent circuit in the laboratory, but starterless fluorescent equipment is not yet commercially available in quantities.) Following are the types of starters in most common use today:

MANUAL STARTER



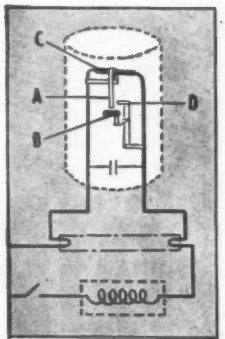
Manual starters are the simplest type and are used principally on desk lamps or other portable fixtures. For example, in the Sylvania P-7 Fluorescent Extension Cord Lamp shown above, one switch turns on the current, and a second is pressed until the ends of the lamp glow to indicate adequate preheating. Then, the second switch is opened so that the lamp can strike its lighting arc. Manual starting is impractical for large installations or inaccessible fixtures, for which the following types of automatic starters have been developed.

GLOW TYPE

With Lamps of this Wattage	Use Sylvania Glostat Model
30-40	FS-4
15-20	FS-2
4-6-8	FS-5

Glass bulb of starter is filled with low-pressure Argon gas. Current makes gas glow, and the resultant heat causes bimetal strip *A* to move over to make contact with *B*, thus preheating the lamp cathodes. This extinguishes the glow in the starter, thus cooling *A* and causing contacts to open. Current then establishes the lighting arc through the fluorescent lamp. Sylvania glow-type starters are manufactured under the name of Glostat, a quick-acting, rugged starter recommended for small and medium-sized fluorescent installations.

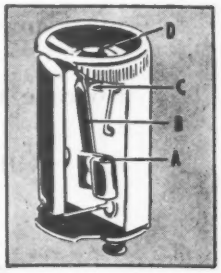
THERMAL TYPE



With Lamps of this Wattage	Use Sylvania Mirastat Model
15-20	M2
30-40	M4
65	M7
100	M6

In a thermal or resistance-heat-operated starter, when the line switch is closed, the bimetal operating strip *A* is touching carbon contact *B*, thus allowing the current to preheat the lamp cathodes. However, the heat generated by the current at this point of contact causes the bimetal *A* to move away from *B*, thus causing the current to strike the lighting arc. *A* is kept away from *B* by heat generated in resistor *C*, which is subjected to the same voltage as the lamp. In restarting, after a momentary interruption of current, *C* is subjected to full-line voltage, and the additional heat causes *A* to bend until it touches restart contact *D*. This allows current to preheat the cathodes again; but, at the same time, it short-circuits *C*, so that *A* moves away from *D*, causing the current to strike a lighting arc again. The Sylvania thermal-type starter is the Mirastat.

CUT-OUT (PUSHBUTTON) TYPE



When a lamp fails, automatic starters continue to make an effort to light the lamp. This causes blinking, wastes current, and injures the starter and ballast. Where immediate lamp replacement is impractical, use a starter with a mechanism that cuts the failed lamp out of circuit automatically. Cut-out starters are the thermal type with circuit breaker consisting of a small resistor *A*, a bimetal latch *B* as one contact, and a phosphor bronze spring *C* as the other contact. The current passes through these elements, which are held in contact position by the latch. When a lamp fails, heat is generated in *A*, which releases *C* and cuts the lamp out of the circuit. With a new lamp in place, the circuit breaker can be reset by pushing button *D*. Pushbutton starters last five to ten times longer than automatic starters, and they eliminate blinking. They are recommended particularly for large installations where the investment in fixtures and lamps is considerable. The Sylvania pushbutton starter is the COP (Cut-Out-Premium), available in model COP-4 for 40-watt lamps.

For additional maintenance information, **SEND FOR THIS FREE BOOKLET**

One Standard — The Highest Anywhere Known

SYLVANIA ELECTRIC PRODUCTS INC.

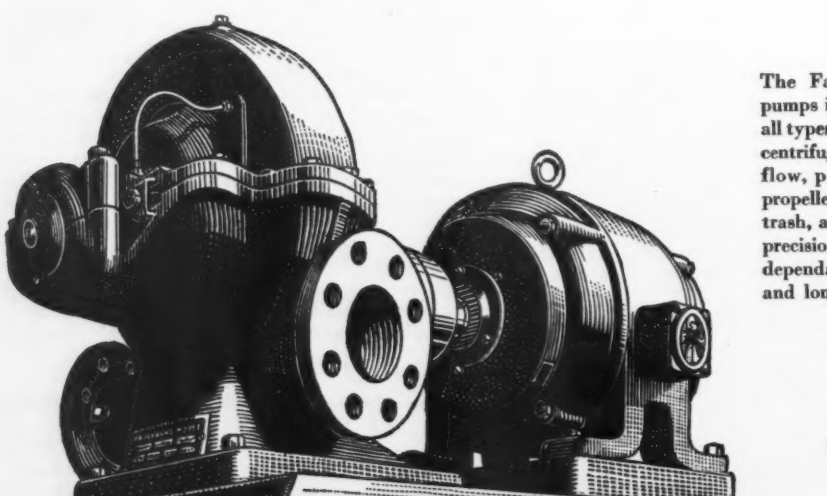
555 So. Flower St., Los Angeles 13, Calif. • 111 Sutter St., San Francisco 4, Calif. • 4424 White-Henry-Stuart Bldg., Seattle 1, Wash.

FLUORESCENT LAMPS, FIXTURES AND ACCESSORIES, INCANDESCENT LAMPS, RADIO TUBES, CATHODE RAY TUBES, ELECTRONIC DEVICES

A name worth remembering!

FAIRBANKS-MORSE

After the war, the name Fairbanks-Morse will continue to mark performance-proved products only, as it has for 114 years. No race to get civilian products onto the market early will tempt us to break this pledge.



The Fairbanks-Morse line of pumps is complete and includes all types — centrifugal, split-case centrifugal, built-together, angle-flow, power, rotary, turbine, propeller, paper stock, sewage, trash, and many others. All are precision built to give efficient, dependable, low-cost operation and longer trouble-free service.

BUY MORE WAR BONDS

DIESEL LOCOMOTIVES • DIESEL ENGINES • GENERATORS • MOTORS • SCALES • PUMPS • STOKERS • RAILROAD AND FARM EQUIPMENT

FAIRBANKS, MORSE & CO., CHICAGO 5, ILLINOIS

Spotlight on the NEWS

WESTERN INDUSTRY
FOR OCTOBER, 1944

VOLUME IX NUMBER 10

Enter the Salesman

Without the salesman, the producer—agricultural, industrial or service—would starve. And the consumer would have to do without what he needed, at least in a large measure. So the postwar salesman is being seen in his true light as an essential link in distribution, and if the producer uses improperly selected or trained salesmen, both producer and consumer suffer. On the basis of that reasoning, conferences on selecting and training postwar sales personnel have been held in 39 American cities, and the most recent of them, staged in San Francisco in September, seems to have been the most specific and practical of any, perhaps because those in charge profited by previous experiences. Because of the importance of the sales problem to industry in the West, the five opening pages of this issue (pp. 27-31) have been devoted to a review of some of the highlights of this meeting.

One Out of Five

One out of five workers has to be a salesman, to move the goods from producer to consumer, but industry has a big job ahead to keep its salesmen returning a profit as well as sales volume to the employer, because analysis has proved that in the drive for volume operating costs have outdistanced returns. So explained (p. 38) the coordinator of the conference.

Why Salesmen Fail

Probably the greatest reason for failure of salesmen is that they are misfits, or else do not understand their jobs, for both which sales managers are largely at fault. Speakers at the conference, authorities in their line, gave specific, intelligent rules for interviewing, selecting and training them. (pp. 29-31).

Looks Belie Actions

Just because aluminum and magnesium castings look alike is no sign that they are alike, warns Dr. Robert Taylor, manager of the Light Metal Alloy Foundry at Washington State College, (pp. 32-34), who points out that they possess entirely different characteristics in the molten state. His article is a summary of steps in quality control in magnesium alloy aircraft castings.

Neptune Goes Modern

Some critics say that maritime methods have hardly changed a bit from the days of the Phoenicians. Far be it from landlubbers to pass upon such an aspersion as this, but nevertheless it must be admitted that a monorail system for discharging ship cargo is slightly on the modern side. That is what is being done on concrete barges in the Pacific war theatre (pp. 35, 36) and the methods were worked out on the Pacific Coast.

Moving the Surplus

The surplus deal is both better and worse than could be expected. The way the Army Air Force got rid of the materials left when the Timm glider contract was canceled (p. 38) is a good example of how a lot of distressing surpluses will melt away. But the job of getting rid of odds and ends sometimes seems just plain hopeless—unless you turn it over to the regular distributors.

Responsibility for Safety

One of the biggest obstacles in safety programs is that employees consider safety a management responsibility. The Paraffine Companies, Inc., reduced accident frequency 60 per cent (p. 52) by having the Labor-Management committees elect "safety observers" who work with the plant engineer and safety engineer to improve safety practices.

Future of Shipyards

First person in authority to say anything about future uses of Pacific Coast shipyards is Clay Bedford, general manager of the Kaiser yards at Richmond. He announces (p. 42) that they *could* (italics are ours) be converted in three days to manufacturing railroad trains, or in a little more time for plane assemblies, heavy duty trucks, refrigerators, etc. All of which is still blue sky, but he did hint that prefabricated houses might be built there, using gypsum products available through the recent Kaiser-Standard Gypsum deal.

Up to Us Out Here

Through Washington eyes the big need for the postwar West is a big increase in farm production as a foundation for industrial growth, says our Washington editor (p. 44). But to get results at Washington, the various representatives there of Pacific Coast chambers of commerce feel the West itself has to get together out here first. In other words, we need a Western bloc.

More About Automobiles

In our July issue appeared an article pointing out that the flexible tooling technique developed in our West Coast aircraft assembly plants had put them in a position to compete in automobile engineering. W. B. Stout, formerly a widely-known Ford executive and now engaged in research for Consolidated Vultee at San Diego confirms this (p. 54), by saying that new companies cannot compete against Detroit in the price field, but can, however, in the "ingenuity field," where a new product with a new appeal is desired. Present motor car companies have given the newcomer every opportunity, he says, because everything with them is jelled and there will be no change until it is forced by some outside competitor.

Clouds Ahead

Unless Portland starts now to rustle up new industry which can start functioning as soon as the shipyards shut down sometime next year, 90,000 workers will be jobless (p. 56). So says Edgar Kaiser, general manager of the three Kaiser yards in that area. Things are all right at present, but at that time it will be bad . . . unless.

Removing Paint Fast

Instead of rubbing paint off planes by hand labor after the paint remover solution has been applied, San Bernardino Air Base now has it blown off with a solution under 400 lbs. pressure, followed by hot water, cutting the job from a week down to 16 hours. (Efficiency Kinks, p. 62). At Vultee Field a mechanical oiler has proved to be 10 times as fast as the hand method in spreading lubricant on punch press blanks.

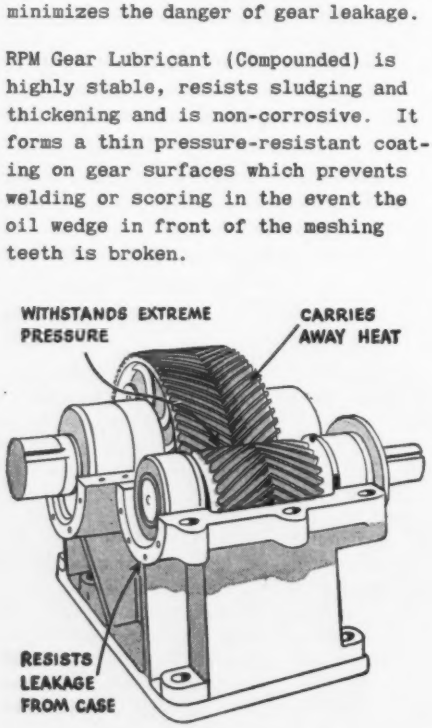
STANDARD ENGINEERS NOTEBOOK

VOL. 1-W NO. 8

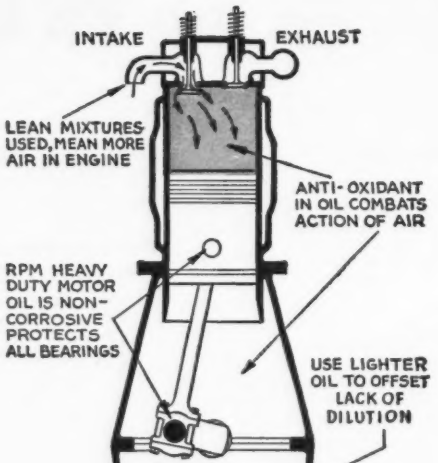
Foam-resistant lubricant minimizes gear case leakage

When incased gears, including worms, are liable to generate high temperatures because of heavy loads and speeds, RPM Gear Lubricant (Compounded) solves the problem of their lubrication. This compounded lubricant carries heat away from gear surfaces and dissipates it. By reducing friction, it also prevents excessive heat generation. Its cooling ability, plus a tendency to resist foaming, minimizes the danger of gear leakage.

RPM Gear Lubricant (Compounded) is highly stable, resists sludging and thickening and is non-corrosive. It forms a thin pressure-resistant coating on gear surfaces which prevents welding or scoring in the event the oil wedge in front of the meshing teeth is broken.



RPM Gear Lubricant (Compounded) SAE 80, 90 and 140 is recommended for reduction gear boxes and other enclosed gears.


INTAKE
EXHAUST
LEAN MIXTURES USED, MEAN MORE AIR IN ENGINE
ANTI-OXIDANT IN OIL COMBATS ACTION OF AIR
RPM HEAVY DUTY MOTOR OIL IS NON-CORROSIVE PROTECTS ALL BEARINGS
USE LIGHTER OIL TO OFFSET LACK OF DILUTION

Lubricating problems of butane engines

Since the fuel mixture used in butane engines is frequently leaner than in other types, the excess of oxygen makes sludge formation a major problem. The extreme stability of RPM Heavy Duty Motor Oil has solved this problem for many operators.

Natural inhibitors and a special added anti-oxidant in this oil reduces oxidation to a minimum.

Because there is no crankcase dilution in butane engines, one grade lighter RPM Heavy Duty Motor Oil is recommended for these engines than for corresponding gasoline engines.

Standard Fuel and Lubricant Engineers are always at your service. They'll gladly give you expert help—make your maintenance job easier. Call your Standard Representative or write Standard of California, 225 Bush St., San Francisco 20, California.

STANDARD OF CALIFORNIA

TRAIN SALESMEN NOW FOR WESTERN POSTWAR SELLING

San Francisco Conference Goes Deep Into Methods For Finding Suitable Salesmen and Teaching Them How to Work Efficiently

JUDGING by the programs, the San Francisco conference at the end of August on selecting and training postwar sales personnel under the co-sponsorship of C.E.D. and the National Federation of Sales Executives got considerably nearer to detailed facts and practical methods than any of the 38 previous conferences held in other cities.

There were five 3-hour sessions covering finding, attracting, selecting, training and directing tomorrow's salesmen. For that reason *Western Industry* passes on to its readers some of the high-lights of this information for their use in setting up sales programs.

The conference was arranged and presented by the Sales Managers Council for Economic Development, a non-profit group formed by the San Francisco Sales Managers Association and San Francisco Sales Managers Club to provide leadership for Northern California marketing. James E. Holbrook, assistant general sales manager of The Paraffine Companies, Inc., acted as chairman and Gene K. Walker, marketing consultant, as coordinator.

Adrien J. Falk, president of the San Francisco Chamber of Commerce, and Col. Alexander R. Heron, California State Director of Reconstruction and Reemployment, dealt with general social postwar aspects, the former stressing the social value of competition and the latter the need for selling a progressively higher standard of living for the entire community.

A proposal that sales managers in the San Francisco Bay area set up a cooperative bureau for screening and training of salesmen was advanced by Alvin C. Eurich, academic vice-president of Stanford University.

Although selling has languished during the war period, while production has made countless technological advances, the conference was striking evidence of the fact that postwar selling techniques, both as to

Sales personnel conference speakers: Top row, James E. Holbrook, assistant general sales manager, The Paraffine Companies, Inc.; Alexander R. Heron, California State Director of Reconstruction and Reemployment; Adrien J. Falk, president San Francisco Chamber of Commerce and general manager S&W Fine Foods, Inc.; Gene K. Walker, marketing consultant. Bottom row, John E. McDowell, assistant superintendent, The Emporium; Dr. Alvin C. Eurich, academic vice-president, Stanford University; A. O. Malmberg, director of public relations, Doughnut Corp'n of America; Dr. David E. Faville, professor of marketing, Stanford Graduate School of Business.

SALES TRAINING . . . .

choice and training of salesmen and sales methods, will show great advances. Samuel N. Stevens, president of Grinnell College, Iowa, in his explanation of psychological and aptitude tests as a basis for training salesmen, gave a particularly significant indication of methods for training salesmen of the future.

Dr. Stevens explained that aptitude testing has been on the way for a long time and went deeply into methods of analysis that have been developed for life insurance companies. Most employment application forms do not get at the real facts needed for selection of salesmen, in his opinion, and "diagnostic interviewing" will become essential, not only in protection to the employer but also in justice to the applicant, uncovering possibilities that otherwise would not become apparent.

Future Outlook

Gene K. Walker, Marketing Consultant

WHAT is the postwar responsibility of American business? What does it take to keep free enterprise in the saddle?

(a) It takes jobs for 56,000,000 workers —so the economists tell us; some put it as high as 60 or 65 million.

(b) It takes a national income of approximately 125 billion dollars. But if it ever falls to 40 billion as it did in 1933, free enterprise is on the skids.

Who is going to create those jobs and that income? The research men, with all their fine new products and appliances? The production men, with their factories tooled up to roll? The engineers, the bankers, the government experts? No! I'll tell you who: the people who sell.

"Anything that can be sold can be made; not everything that can be made can be sold." Carlton Sturdy of American Can Co. says that for 56,000,000 workers you need 11,000,000 sales people, or 1 salesman to 5 workers. On the basis of his formula, for the 1,500,000 postwar jobs needed in Northern California, 20 per cent of them need to be salesmen, or 300,000. My guess is 200,000.

In the drive for volume, marketers frequently take on items, customers and territories that add more to operating costs than to revenue. Eight per cent of the sales effort goes to produce 20 per cent of the profits.

Examples: Paint distributor: 75 per cent of the orders were under $3 and handled at a loss; 25 per cent of the orders accounted for 78 per cent of the total volume.

Wholesale hardware. Eliminated 50 per cent of the customers and 30 per cent of the items. Result: increased net 3-fold.

Meat packer. 24 per cent of salesmen's personal calls, 26 per cent of salesmen's phone calls, 16 per cent of deliveries, brought in only 2 per cent of the business.

Small wholesale grocer. Analysis. All customers under $10 a week unprofitable, so were eliminated. Result: 17 per cent reduction in sales volume, $13,000 saved on operating costs, $6,000 increase in profit.

Revision of sales practice is needed for the postwar period.

Army Air Force rewrote their primary handbook to explain every maneuver with cartoons. Now they save up to a week with this handbook alone, because they no longer have to take time to explain to the flyers what the explanations in the handbook mean. The cartoons do that so everyone can understand—and quick.

The Navy made 1,000 movies last summer and 600 slide-films, a program involving a greater budget than any two Hollywood studios combined have ever undertaken. That's why sailors now learn more about fire control from a 15-minute film than they previously absorbed from a 2-hour lecture. Army has cut training time 40 per cent from the 1917 level and has outlawed the classroom lecture as the poorest kind of teaching.

How are we going to profit? Suppose we take up Army technique in training salesmen. You'll first find:

(a) Salesmen around a phonograph, guide book in the hands of each. After a few sessions, instructor takes over. No dry-as-dust lectures. Questions and discussion, audience takes part, make them learn by thinking.

(b) Films. Instructor prepares and shows film. Questions, discussion review, practice.

(c) Learn by doing. Salesmen go out with instructor or supervisor. Then back to school for more training. At Antioch and Bennington, college students spend one-fourth to one-half of each school year out on the job. At Iowa State College students learn farm management by managing a farm.

Job Analysis

Dr. David E. Faville, Professor of Marketing, Stanford University

IN SELLING, the sales manager uses job analysis mainly to determine what requirements an employee should have in order to perform the duties of his particular position satisfactorily. A job analysis is not complete until a description of the job is reduced to writing.

Job analysis may involve:

1. Listing the duties you expect the salesman to perform.
2. Listing the difficulties you think the salesman is likely to encounter, being realistic about it. Considering the type of man you will need to overcome those difficulties. Taking a good look at your competitor's product and methods to see what your man will be up against.
3. Considering the character of your product. If highly technical, you need a different type of salesman than if you have one of the more popular type of products.
4. Considering the type of customer you are going to have to deal with. If a professional buyer, you will need a very different type of salesman than if you are selling to inexperienced or non-professional purchasers.

As a cross-check on your analysis, look at the personal history records of a few of your salesmen in the past. See what qualities the best one possessed, and what qualities were common to those who failed. An analysis of this sort will be more important than ever, because both you and the men who will be coming to you are likely to be rusty on the business of operating in a buyer's market.

A listing of duties not only gives a clear idea of what you expect a man to do, but the very process of listing puts you as a salesmanager in a better position to convey

• Camera's-eye view of some of the salesmanagers studying up on their postwar problems.

SALES TRAINING . . . .

a conception of the job to your salesmen.

Your analysis should go further back and include the sales manager himself, because the foundation of sales selection and training begins with him. Are you the kind of a man for your job? The Boston Sales Managers Club circularized 5,000 salesmen and found what they wanted in a sales manager:

1. Sales managers who know their jobs, and who will be realistic about the problems involved.
2. Want a man of integrity, who keeps his promises, is fair, just, and plays no favorites.
3. Want a man who can lead and inspire them to do their best work, who has a sense of purpose and direction.
4. A man who possesses the quality of human understanding, who will be loyal to his men and not drop them when there is a conflict between his interest and theirs.

If I were going to make a job analysis I would first list the products the salesman has to sell and their characteristics, also the competitors' products. List what the salesman ought to know about these items. This should show right off what grade of training and intelligence you are going to need in your salesman.

Next, list the duties you expect the man to perform. Will he call on distributors or retail dealers, or both? Will he be on his own for long periods of time, or will he be close at hand where I can check on him every day? Am I going to route him, or will he route himself? What do I expect him to do on dealer helps? How shall he budget his time? How many calls do I expect him to make in a day, and on whom? Do I expect him to give merchandising assistance to his customers? How much time should he devote to service operations, to building goodwill, to prospect finding? What daily, weekly, monthly sales volume do I expect from him? How much time should he spend on reports? How long do I expect him to be out in the territory at a time?

After listing these duties, relate them to the kind of man the duties call for. A misfit on even one of the duties may disqualify a certain man for the job, e.g., one company did not want tall men because salesmen had to travel long hours in company cars that had short leg length and unadjustable front seats. A tall man couldn't sit comfortably in them. Sales manager for soft drink concern wanted tall men who could tack up dealers' signs more easily, so the dealers would have to use a step ladder to get them down—signs stayed up longer.

Overcoming difficulties encountered by salesmen:

Analyze letters sent in by salesmen asking how to meet specific problems, or else list your own experiences or ask salesmen already employed to list some of their problems. A soap company discovered 165 major difficulties, which disclosed need for having men who were tactful and resourceful.

Samples! How can you find out whether a customer is in the market for a product? How do you decide whom to see when visiting a customer? How can you find out whether a customer's credit is good? How can a young man hope to have his story heard by an older man of experience and standing? What if the customer has no time to see you? What can you do if the customer says he isn't interested? What if your price is higher than a competitor? How can you find out what competitors' prices are? How can you correct a customer without offending him when he makes a false statement about the product? How can you possibly obtain business from a customer who sells products extensively to your customer? How can you establish your position with a customer who has had trouble with your apparatus?

Example. Higher price. Salesman selling electric lighting equipment to a city power company encountered the objection that there was a $5 price differential between his lamps and those of a competitor. The salesmanager, knowing this would arise, supplied his salesmen with conclusive laboratory tests that his lights not only gave out stronger light but also gave 7½ months longer service, and that for $5 additional the power company would save $40 in the long run.

Buyers may be classified into groups. Scientific type:

(1) Has an objective type of mind; (2) Is one who uses his reason first; (3) Is observant but not openly curious; (4) His mind is disciplined and alert to flaws in your argument; (5) Is naturally skeptical but willing to suspend judgment until you are finished.

Sell him through a salesman of same type of mind or who thoroughly understands these thought processes, and whose knowledge of the product is at least equal to the purchaser.

Popular type: Characteristically moved by emotion rather than reason. Not too observant. Not too logical. Moved by whim, inclined to jump at conclusions. May be impressed by technical language, but he won't understand it. More likely to be sold by a convincing manner than a convincing argument. Many women customers fall into this category.

Job analysis can't be made an armchair proposition. Time study of daily procedure of your best salesmen may be of assistance in raising the performance of others. A good sales manager keeps a memo pad and lists up each day everything for the next day.

The salesmanager must reduce guessing to lowest possible point. An elaborate sales plan is no use if your competitor is already out with a better product at a lower price.

Testing Aptitudes

Dr. Samuel N. Stevens, president, Grinnell College

IF WE continue with horse-and-buggy methods regarding men, although we have discarded such methods long ago for machines, we will be eaten out of house and home by social security costs, unemployment insurance, guaranteed wage costs, special privileges and benefits. These are sales costs that can no longer be hidden, and simply making a sales quota will not suffice.

Factors found to be of predictive value

• Three hours a day, for five days, they stuck faithfully through this training school.

by the Research Institute in selection of salesmen are:

1. Length of time spent in negotiating for a job. Does he take the job right off, or have to be sold? If he requires selling, it is a point in his favor.

2. Has he earned any money before?

3. Did he earn it as a boy? Did he try to get economic self-sufficiency when young? This is a point in his favor.

4. Age at time of hiring. Important.

5. Marital status at time of hiring. Other things equal, a happily married man will stay on the job better than a single or divorced man.

6. Employment status of wife. If wife is employed at time of hiring and so continues, he will not be as stable as if she is unemployed and at home.

7. Previous selling experience.

8. Time of residence at last address. Stability factor increased if he happens to own his home.

9. How much life insurance does he own, if any. An individual in debt is a relatively unstable risk as a salesman.

10. Earnings anticipated. One who anticipates less than he economically needs in relation to size of his family and his normal wants likely to be poorly motivated.

11. Relation between present time of employment and last employment. How long out of a job.

12. Amount of education he has voluntarily taken as an adjunct to his work. Has he kept after himself toward self-improvement?

13. Amount of leadership he has been given in organizations of one kind and another. Indicates degree to which he has leadership, aggressiveness, poise, is capable of being liked and trusted.

Personnel Selection

Richard Hilliard, vice-pres. and general sales manager, The Paraffine Companies

IN GETTING salesmen in our company we are chiefly concerned whether a man has character, resourcefulness, tenacity and other desirable qualities to build a career for himself. We don't hire men just to fill jobs.

We do not write casual letters to the references given. Instead, we write rather lengthy letters, asking whether the applicant should join our organization. We ask for help, for anything they know about him that would help us in training him. Then he has from three to five interviews, about which there is nothing casual.

A manual has been produced containing all information the interviewer must get, which has resulted in planned interviews. No interviewer sees the report of any previous interviewer. We also seek to determine whether men are suited for specialized jobs. General salesmen can be converted into specialists, we have found, and it is also true in our experience that there is very little difficulty in changing technical men over to general salesmen.

After screening come tests, and we use both the Strong vocational test and the Otis employment test.

INTERVIEW CHECK SHEET
Used by Paraffine Companies Interviewers

1. STATUS OF APPLICATION:

Application Attached Yes.....No.....

Are References from former employers satisfactory? Not Rcd.....Yes.....No.....

Is Retail Credit Company report satisfactory? Not Rcd.....Yes.....No.....

2. TEST HISTORY:

Employment Test Rating	Sales Aptitude Test Rating
Very Favorable.....	Very Favorable.....
Favorable	Favorable .....
Doubtful.....	Doubtful.....

3. PERSONNEL MANAGER'S PERSONAL JUDGMENT OF APPLICANT:

(Indicate such factors as outstanding strong points, possible weaknesses, value of previous experience, etc.)

4. DANGER SIGNALS:

(In interviewing this applicant, please check any of the following factors that you feel is a danger signal)

a. Yes.....No.....Does the applicant impress you as a prospect who is not certain he would like selling?

b. Yes.....No.....Is he a former salesman of a competitive organization?

c. Yes.....No.....Do you consider the man's previous experience detrimental?

d. Yes.....No.....Do you feel the man has changed jobs too often in the past?

e. Yes.....No.....Are you satisfied with man's reasons for leaving his former positions?

f. Yes.....No.....Has man accounted for his time satisfactorily for the last 5 years?

g. Yes.....No.....Would moving the man and his family from his present location cause any difficulty?

h. Yes.....No.....Do you believe the man to be conservative in his financial dealings?

i. Yes.....No.....Do you believe the man's previous salary a detriment to taking a position with this company?

j. Good.....Fair.....What is your appraisal of the man's selling ability?

k. Yes.....No.....Does the man impress you as being aggressive and mentally alert?

l. Yes.....No.....Do you believe he possesses a pleasing selling personality?

m. Good.....Fair.....What is your appraisal of his judgment and common sense?

n. Yes.....No.....Is the applicant's personal appearance satisfactory?

o. Yes.....No.....Do you feel applicant appreciates requirements and opportunities of the job?

5. SUMMARY OF QUALIFICATIONS:

a. What is general opinion of the applicant?
(1) Unfavorable
(2) Doubtful
(3) Favorable
(4) Very Favorable

b. Do you recommend him for employment?
(1) Yes
(2) No

Interviewer..... Date.....

(Please return this form and file to Sales Department Personnel Manager)

Challenging Future

George S. Jones, Jr., vice-pres. in charge of sales, Servel, Inc.

MY CUSTOMERS are your employees. If I have created the desire to buy a refrigerator, then I have created the desire to work for the wherewithal to buy it.

To solve the postwar problem of employment, all we have to do is to place on our books orders for sufficient goods and services from all the people to replace that which is now being ordered by one customer, the government.

Visual Aids

Floyd E. Brooker, U. S. Office of Education

WE HAVE not yet learned how to use pictures most effectively; many pictures are used in magazine advertisements but very few tell a real story. When we develop real use of pictures we will have the first international language since Latin was discontinued in the 17th century.

When you have anything you want others to do, then you have use for pictures, but here are some examples of how not to use them: an eastern shipbuilder spent $175,000 for a picture that has been seen by just 43 people; another company had a picture shown all over the United States but did not dare to show it to the company employees because these employees do not believe it tells the truth; another cost $14-000 and has been seen by the president and two vice-presidents.

People who have taken colored movies of their children consider themselves fit to supervise industrial films. Pictures have grown up in the verbal theory, and in one instance that I know a film was chosen because the sound track gave off 275 words a minute instead of 150. There is one film in California that mentions the company's name 12 times a minute for eight minutes. Obviously we have to learn good taste in pictures and learn how to choose them to do their job.

• George S. Jones, Jr., president, National Federation of Sales Executives, and vice-president in charge of sales, Servel, Inc., who compressed an hour's speech into ten minutes, and Lieut. Col. Alvin R. Bailey, civilian personnel officer, San Francisco Port of Embarkation, formerly assistant to the president, Pacific Public Service Company.

Pictures won't take the place of a sales manual or some other things but they form a remarkable method of self-instruction. How many of you people have had a sound picture made of your own attempts to sell your product? How many have made a sound record of your own speeches?

Let a salesmen make a wire record of his own talks— wire recording in the cheapest way—and then listen. He will learn more in two days than you can tell him in two weeks. The experience provided by a motion picture is a more intense effect than any other, the most concentrated form of controlled experience.

Make sure that your job needs a visual aid. It is a mass instructing aid, not for a small group of people. Learn the difference between motion pictures and film strips. Trust your product only in the hands of people who know their jobs. Decide how you are going to use it before you buy the film.

A Texas shipyard found that 10 films did more good than 200 men. An aircraft plant found that 20 people trained by pictures produced only one-fourth as much scrap as people not so trained. The most successful sales and service organization in industry uses films for training.

Teaching-Learning Process

Dr. Frederick P. Woellner, Professor of Education, U.C.L.A.

KEEP YOUR eye on your man; goods, costs, etc. are all secondary. An actor puts over a part, and a good salesman is a good actor. Thinking is analyzing the past to improve the future, and after every conference with your salesmen think it over to see just what you did. If you think between performances you can upgrade your men 50 per cent in one year.

Every satisfaction leads to six dissatisfactions, so there is no saturation point in selling. Progress is continually shifting the line between luxuries and necessities.

• From left: Richard Hilliard, Pabco vice-pres. and gen. sales mgr.; Floyd E. Brooker, U. S. Office of Education; Pres. Stevens of Grinnell.

• Group of castings being given final visual inspection after surfa ce coating operation in Washington State College pilot foundry.

Quality Control In Magnesium Alloy Aircraft Castings . . . .

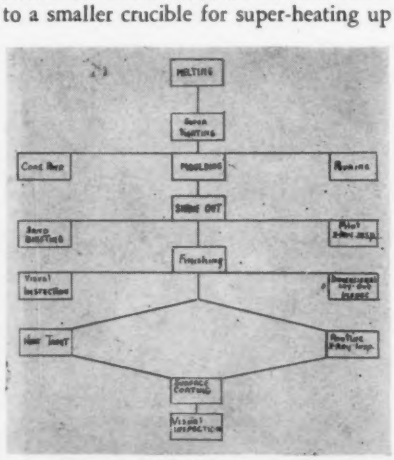
By ROBERT TAYLOR
Manager, Light Metal Alloy Foundry,
Washington State College

THE MANY factors which control the ultimate quality of magnesium alloy aircraft castings require both close supervision and sound technical advice.

When comparing the fabrication of aluminum and magnesium castings the lack of similarity in foundry applications is not always fully appreciated. In the molten state magnesium possesses characteristics entirely different from aluminum and therefore it requires different handling. As stated recently by a very competent individual, "had magnesium been the color of copper rather than the color of aluminum, our problems would have been greatly simplified as we would not tend to treat it so much the same as we do aluminum."

In the foundry the initial step is carried out by placing the ingot into the melting furnace. These furnaces are usually constructed by welding from common boiler plate, and are arranged so they may be tilted when it is desired to remove the molten bath and place it into a smaller crucible for super-heating. During the melting process a thin flux such as Dow No. 230 is dusted over the metal to prevent burning. The metal is melted at temperatures ranging from 1300 to 1350 degrees farenheit.

When the ingot has been completely melted the molten bath is then transferred to a smaller crucible for super-heating up to as high as 1750 degrees farenheit. A different type of flux is used to dust the molten stream during superheating and Dow No. 310 has been entirely satisfactory for this use. The flux which is formed over the molten bath in the melting furnace should be skimmed off and not transferred to the smaller crucible when removed for super-heating.



• Graph illustrating various control steps

Good super-heating practice seems to be primarily the controlling factor for securing a satisfactory grain size within the casting. The physical properties of the casting are obviously affected by coarse grain and it has been our practice and I believe that of a good many other foundries to super-heat to 1650 degrees F., allow the furnace to remain at this temperature for 15 minutes, then remove the crucible and allow it to cool in air until the thermocouple reads the desired temperature for pouring.

In removing the super-heat crucible there will be found deposited on top a crusted layer of flux. As pouring begins care must be taken that none of this flux goes down the sprue. One of this country's leading metallurgists now associated with the magnesium foundry industry recently

remarked, in effect, "that if you do not know whether you have flux inclusions in your castings, your customers will most certainly tell you."[1]

Cast iron runner cups are used extensively to reduce possible turbulence in the mold by providing an area where the molten stream can flow a short distance prior to entering the sprue. These may be noticed atop the mold in the illustration showing pouring the metal into the mold. Dow agent No. 181 is dusted over the molten bath within the crucible during pouring to prevent burning.

In short, good pouring techniques are essential to control the possible defects which aircraft producers cannot accept in their castings, such as oxide, flux and porosity. The inclusion of oxide is dangerous, in that it forms a thin but tough skin over small aerated areas, thus preventing their being blown out through the sand and thereby entrapping them as an inclusion in the casting. As a rule pouring temperatures range from 1400 to 1600 degrees F.

In aluminum castings porosity is the result of gas absorption. In magnesium castings it has been determined that porosity is brought about by shrinkage of the eutectic at the grain boundaries. In either metal detection of porosity is readily accomplished by X-ray inspection. The causes of the defect in magnesium alloys may be any one of or all of the following: improperly designed feeders, an ill-designed gating system, risers placed improperly, as over the wrong section. Design may be the cause primarily where an abrupt change of section is required and where the gate is not designed properly to feed this area.[2]

Aircraft castings often require numerous cores and the preparation of cores must be carried out carefully. The common sand used for cores is a washed and dried Ottawa silica sand having an A.F.A. fineness of from 55 to 60. One of the primary reasons for using a high grade sand for cores is that a minimum of bonding material is required to give the strength desired. The use of chills is rather extensive for the control of directional solidification and to eliminate shrinkage.

By virtue of the complicated designs often encountered in aircraft castings many of the cores are intricate in design. Routine dimensional checks on core boxes offer assistance in maintaining dimensional allowances. We attempt to keep rapping of the core boxes at a minimum in order to eliminate the possibility of undersized cores. A routine inspection of finished cores should be carried out or occasional faulty cores may find their way into a mold.

In any type of foundry castings are gated, risered, chilled and fed in a manner that will best provide a good sequence of solidification. Obviously this will provide an adequate supply of metal in all sections of the casting as it solidifies. To minimize turbulence the gating system must be so designed that the cross section will exceed that of the sprue, while a still larger cross section is maintained in the runner than in either the gate or sprue. Excessive turbulence will cause blows which may or may not vent out through the sand. A system that utilizes a good combination of risers will in turn provide reservoirs for the exit of gases and oxide as well as lowering the temperature gradient within the casting.

The formation of shrinkage cavities within a casting is indicative that improper provision has been made for the best solidification sequence. X-ray inspection will point out the shrinkage whereafter the foundryman may take steps for its elimination by adapting additional risers or chills or perhaps altering his arrangement for feeding the casting.

Molding Sand

The molding sand used in a magnesium foundry must have satisfactory green strength, dry strength and permeability. The latter refers to the property of a sand to vent gases. Permeability will decrease as mold hardness increases and in certain cases the permeability satisfactory for a soft rammed mold may be entirely too low for a harder rammed mold. Molding sand should be tested with a good sand testing machine and a permeability meter.

Care should be taken in shaking castings out of the sand mold after pouring to the extent that they are not shaken out too quickly. Sufficient time should be allowed for the thicker sections to solidify. If shaken out too soon skin cracks or sub-surface cracks may result. These will naturally be cause for rejection.

Following shake-out the castings are sand blasted, the gates and risers are sawed away and they are transported to the X-ray inspection laboratory. Those castings of new design are 100 per cent X-ray inspected prior to starting a production run in order to determine the quality of the technique which produced them. Control of quality can not be maintained without X-ray inspection in the magnesium foundry. It will pay dividends in the long run if X-ray inspection is carried out 100 per cent on new pilot castings and 10 per cent on production castings.

Dimensional lay-out inspection should be performed on all pilot castings and occasional checks made on production castings for ascertaining the correctness of the production technique.

Visual Inspection

One of the most important of all quality control procedures in the magnesium foundry is the visual check. Prior to removing gates and risers and before any finish-

Baseball bats of magnesium and fashioned in the light metals laboratory at Washington State College will be on the market this fall.

Magnesium fruit ladders and scores of other small metal articles are also being made in the Pullman plant.

• Pouring molten magnesium into molds. Note cast iron runner cups on top of molds.

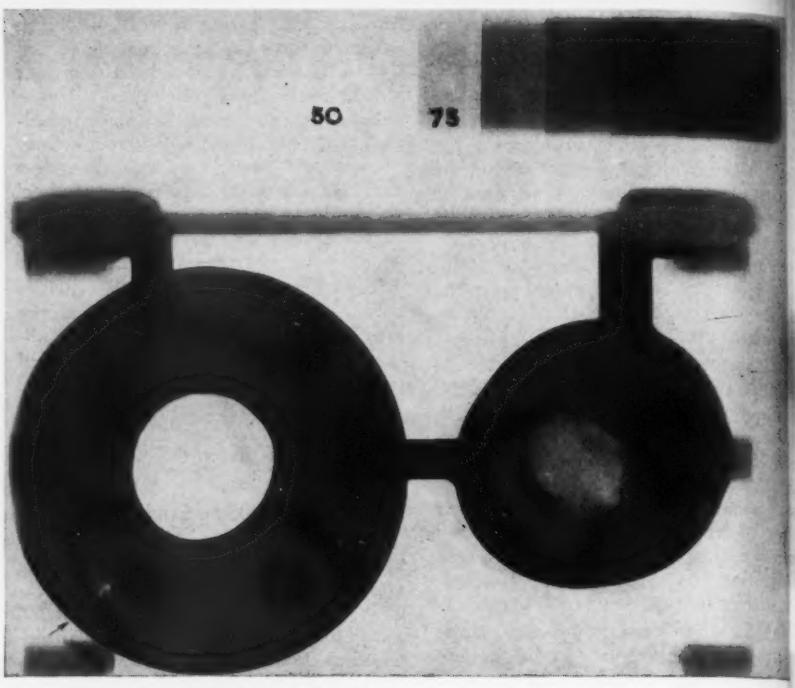
ing work is performed, all castings should be carefully checked visually. Such defects as surface shrinkage, misruns, cold-shuts, oxide folds, excessive roughness and surface blows will be detected without difficulty and will preclude the possibility of spending valuable time finishing an already known defective part. Visual inspection should be carried out once more following application of the surface coating operation and just prior to packing and shipping. In this instance it has been found that many defects will be illustrated following application of the surface coat which were not detected prior thereto.

The heat treating of magnesium castings is more or less common knowledge and requirements are covered entirely in existing Army-Navy Aeronautical specifications. There is however, one factor which should be closely adhered to and that is the manner in which the castings are supported in the furnace.

Thin castings relatively long in section will tend to warp during heat treatment unless rigidly supported on proper racks in the furnace. We have tried to make it routine policy to construct a sturdy method of support for this type of casting during the time it is in the furnace in order to eliminate the possibility of warpage. Small jig fixtures should be constructed of proper dimensions for the purpose of inspecting this type of casting following heat treatment to ascertain whether or not warpage has taken place. In this way there is little possibility that any warped materiel will be shipped to producers.

Packing for Shipment

Magnesium alloy castings should be packed in good wooden boxes if procurable before shipment. Cases have occurred where thin webs have been bent out of dimension during shipment, the result evidently of some object impinging itself against the casting which was not properly protected against such possibility.



• Radiograph of magnesium alloy gear housing sand casting, showing severe crack in flange (marked by arrow in lower left hand corner). Obviously this is unserviceable.

Among some of the control factors which have not been discussed is that of inhibitors. Chemicals such as diethylene glycol, sulphur and boric acid are used in conjunction with fabrication of magnesium castings for specific reasons. Diethylene glycol is used to retain a certain amount of moisture in the sand. Sulphur and boric acid form a protective film on the metal and a similar atmosphere in the mold and at the same time serve to coat the sand grains with fused inhibitor substances. They have the property of reducing temperatures by their latent heats of fusion and vaporization.

Since these inhibitors are usually mixed so the two, sulphur and boric acid make up five per cent of the weight of the sand, analyses performed at least weekly should be made to determine the percentage of inhibitor to sand. One evidence of a deficiency of inhibitors can be detected by watching for blackened areas on the heavier sections of some of the castings.

There are many more important controls not covered in this brief writing but there remains one more vital control for consideration.

Surface Coating

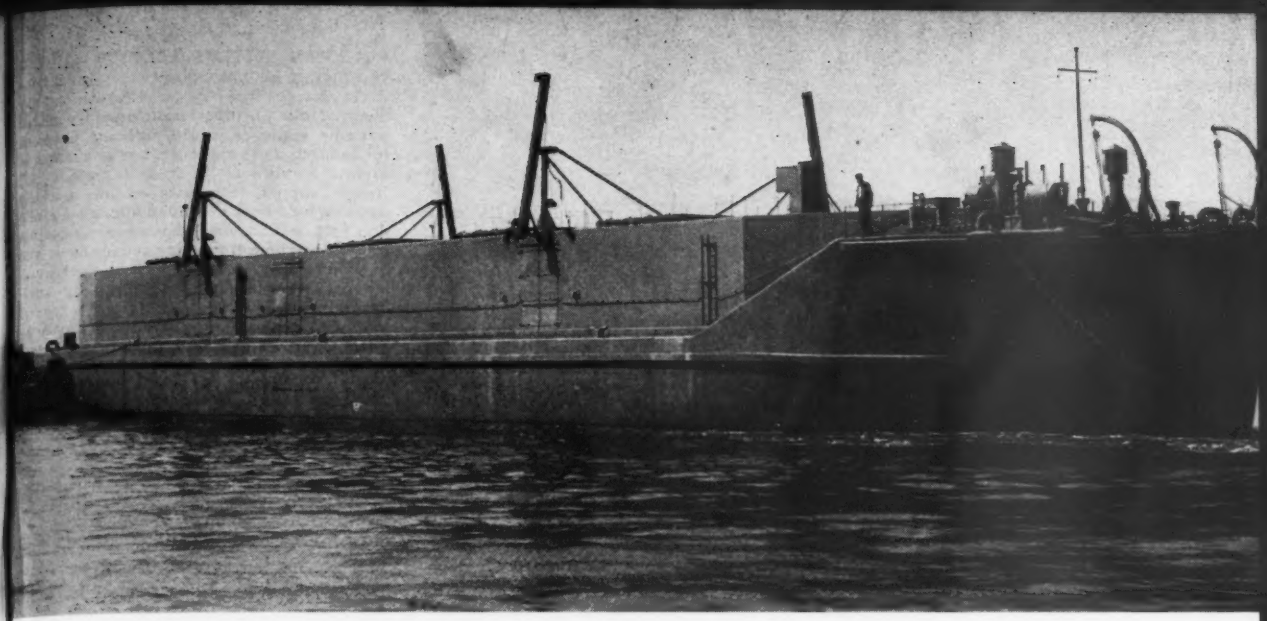
One of the most common solutions for surface coating magnesium alloys consists of 1.5 pounds of sodium dichromate, 1.5 pints of nitric acid and water to make one gallon. Daily checks should be made on this bath to determine the strength of the solution to make certain that an inferior coat is not applied. The solution may be stored in stoneware crocks the size depending on the size of the foundry.

A good practice in dipping castings into the bath is that rather than remove a casting and place it directly into hot water, it is allowed to drain back into the tank with the result that needless waste of solution is prevented and the bath may be expected to have a longer life.

• Fixture filled with magnesium alloy aircraft castings ready for heat treatment in box type Lindberg furnace. Thin castings will tend to warp unless rigidly supported.

REFERENCES:

1. Brooks, Manley, Dow Chemical Company, Melting and Pouring Magnesium. The Foundry, Jan. 1944.
2. Aluminum Casting Alloys, Aluminum Co. of America, 1943.
3. Denbeck, N.J. Properties of Sand, American Foundryman, Vol. 6, Jan. 1944 and Feb. 1944.
4. Report on Magnesium Sand Casting to Washington State Planning Council Project 43 (to be published).
5. Hayward, J. Magnesium Castings, Foundry Trade Journal, Feb. 1944.



UNLOADING—New Western Ideas

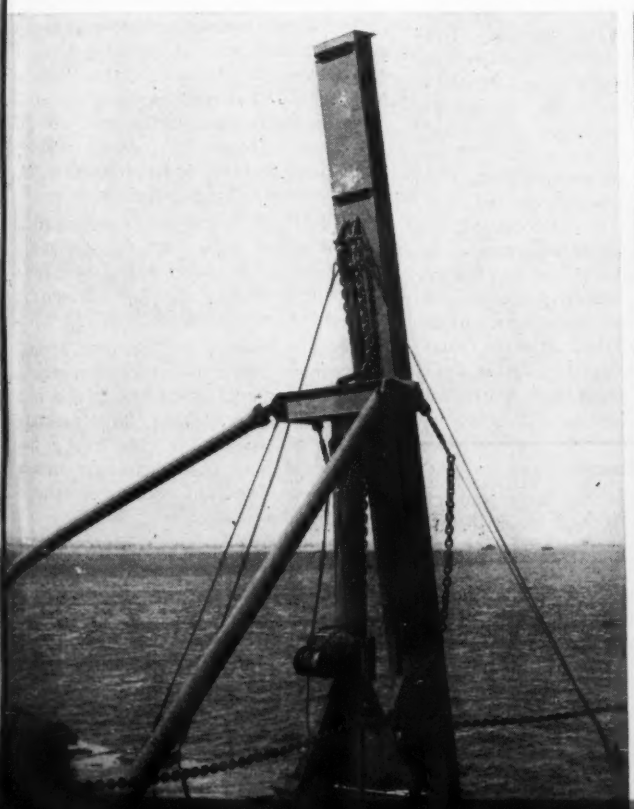
AS THE numerical strength of attacking American amphibious forces upon Jap-held island strongholds grows greater with each objective, the problem of their supply and maintenance for the Army Transport Command becomes more and more involved.

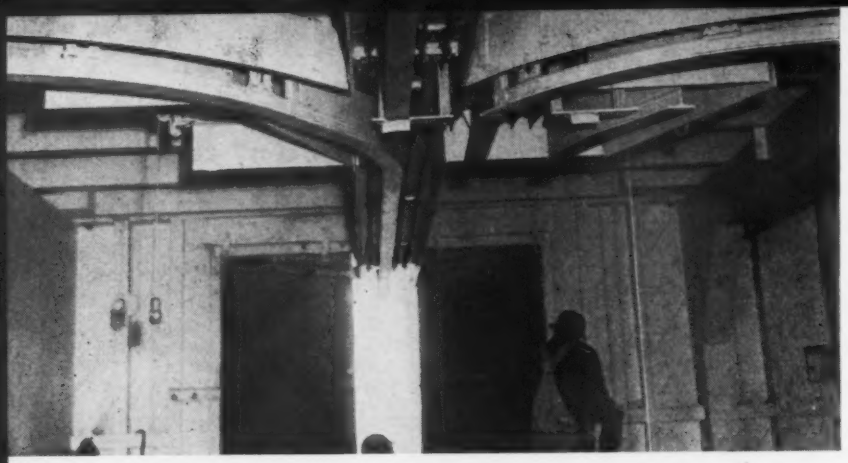
Along with it have come new materials handling problems. The solution evolved, of introducing the modern systems employed in manufacturing plants and warehouses on land to speed up production, may have considerable bearing on future methods for handling cargo in peace times.

Combining experience and training gained through scores of landings earlier in this war, such as Guadalcanal and Tarawa, the Maritime Commission, working with the ATC, developed what has proved to be an ideal method of supplying attacking troops with food and equipment from ships offshore—the concrete floating warehouse.

Built by the Concrete Ship Constructors of San Diego, these huge barges are towed to the scene of action by Liberty ships or special tugs. Having a shallow draft, they

(See next page for picture captions)





• MODERN SYSTEMS ADOPTED AT SEA. **Top picture on preceding page shows concrete barge serving as offshore supply depot. Note the jibs which are in vertical position while en route, but are lowered for loading and unloading. Lower picture is a close-up view of jib crane lashed to "A" frame support. It is lowered into working position by means of a hand operated winch and interlocked with the monorail system in the deck house. Interior scene shows one of the motor-propelled hoists on the traveling crane which is also driven by variable pressure under-drives. Picture at top of this page shows hand operated heavy-duty switch, by which the load can be transferred from the main line monorail over to the spur track and thence to the jib crane.**

can be beached or anchored very close in, enabling supplies to be unloaded as needed, often under heavy enemy fire.

All of this required an innovation in materials handling technique and operation which would demand greater speed in order to insure safety to both cargo and crew.

Here the opportunity for modern methods of materials handling presented itself. Conventional methods had to be improved upon. Delays occurred because of lack of sufficient cranes and derricks with revolving booms during time of emergency. Much of the cargo was not within their range, necessitating a great deal of moving by deckhands, thus wasting precious time and endangering the lives of those exposed to exploding bombs and strafing by the enemy.

The ideal solution was to install a cargo handling system which would be capable of reaching the hold with an additional increase in outlets through which cargo could be delivered to landing craft below.

The answer lay in a complete motor-propelled overhead crane system covering all hatches; monorail interlocking with the crane beams, thereby permitting a straight run fore to aft; four motor-propelled hoists with sufficient lift to reach the bottom of the hold, allowing servicing of four of the eight hatches simultaneously. It was designed and constructed by Spencer & Morris, materials handling engineers of Los Angeles and San Francisco in cooperation with Concrete Ship engineers.

The monorail is equipped with switches by which the load can be run off the main line onto spurs, thence on to the boom which extends 12 feet from the edge of the hull, and then lowered to receiving boats or amphibious craft. If the barge is close enough to shore, trucks on solid footing can handle the load direct.

Hoists on the barges are of two ton capacity, have 22 foot lift, and specifications call for a lift of 30 feet per minute in order to insure quick transmittal of cargo. Travel speed on the runways of the monorail system is limited only to the cargo handling requirements of the moment.

Because of the probability of inexperienced crews, operation of the system was simplified to the nth degree. Safety features were applied to foresee any possibility of damage to equipment or cargo.

Primarily, the system has been designed to be sufficiently flexible for any speed or any type of hoist desired. If the cargo is very light, a correspondingly light hoist is specified. In the case of handling delicate instruments or small packages, hoists can be equipped with controls for extremely careful spotting. If heavy cargo, a hoist is specified which can tote a maximum load to the limits of the designed system.

For purposes of security, production figures of the barges are not available, but building time for one unit was lowered from the normal 17 days by dint of exhaustive cooperation of the construction crews to six days.

Many problems arose involving the possibility of heavy seas or disabling enemy action during landing operations, which would cause heavy listing to a dangerous degree while unloading. Two Spencer & Morris patented Vari-Pressure underdrives on the cranes and hoists compensated for this eventuality. These are capable of negotiating a 7 degree incline while fully loaded and have been tested satisfactorily under severe conditions.

The Conship barges are manufactured in both cargo and built-in refrigerated units, the latter for protection of food supplies which are drawn upon as requirements demand, thus making obsolete the practice of issuing a heavy rations packet to each soldier with the chance that the food might spoil. This lightened the task of the Quartermaster Corps considerably, making possible the serving of fresh foods as the campaign progressed.

Food to Take Home

War plants employing large numbers of women should provide cooked food which women may purchase to take home, thus lightening their burden of preparing a family meal after reaching home, the industrial feeding study committee of the Council of Social Agencies at Seattle recommended after a survey of in-plant feeding facilities.

Army Cuts Handling Costs at Sacramento

At the Walerga lumber storage yard of the U. S. Engineers near Sacramento, California, handling time has been reduced 35 per cent and operating costs 26 per cent by two feature operations, and for the first five months of 1944, 45 million feet of finish lumber was handled at an overall cost of less than $4 per thousand board feet.

All lumber is packaged at the time it is unloaded from the cars, is carried in this packaged form in storage, and still in packages, is loaded for out shipment. Stacks four feet wide and five and one-half feet high are built up on carrier blocks and are retained in form by side cleats and end stickers. One-inch lumber is stacked 66 boards high, and two-inch is stacked 34 boards high. By standardizing the stacks the work of the carrier vehicle is uniform on all sizes of lumber. This materially expedites operation.

The second innovation that has effected even greater economies, is the placing of stack rows at a 45-degree diagonal in the bays instead of at right angles to the roadways. In the former practice even with 20 feet clear between bays, carrier vehicles had to back and turn to straddle the stacks depositing or picking up their loads.

At Walerga the carriers now drive right in, just as you angle park your car at the market or parking lot. Loading time from the roadway to the stack and back onto the road is cut from 70 seconds to 12.

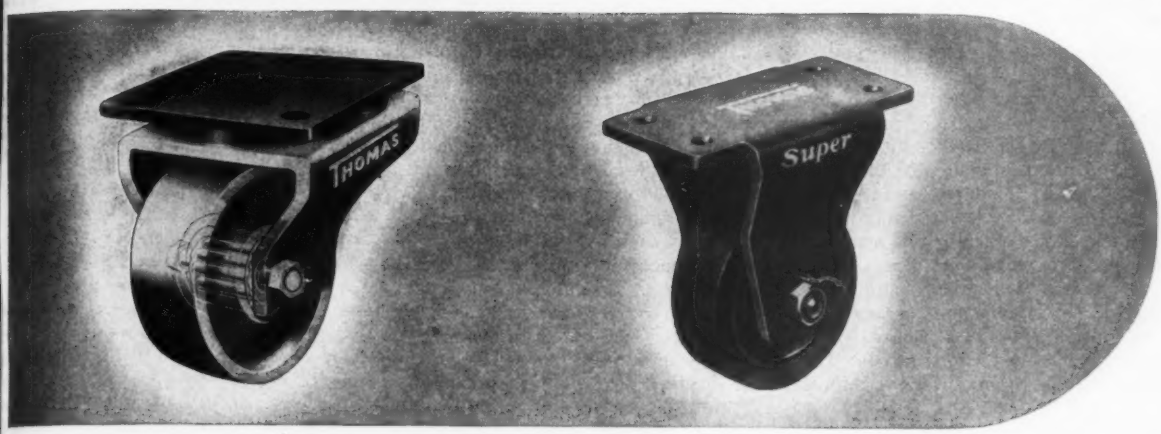
Still in addition to the time saving, where in the past a 50-foot bay would hold only two packages of 20-foot lumber in a row, with angle stacking, three packages are now placed. Last but not least, it has been found that a 16-foot roadway permits free access. The four feet saved is used for additional storage.

Operation is by contract. The contractor employs 28 men, and uses four lumber carriers and one crawler type dragline crane. Under pressure, the yard has handled upwards of fourteen million feet of lumber per month. The dragline has loaded as high as 50,000 feet an hour.

THOMAS TRUCK of Keokuk

WRITE FOR NEW THOMAS CATALOG

Over 1000 different "Job-Suited" superstructures for Thomas 4 wheel trucks illustrated in Thomas new catalog No. 43. A few of them are shown around the border of this page. . . . Write for catalog today.



SUPER HEAVY DUTY SWIVEL CASTERS

Swivel With Rigid to Match . . . The Choice of Heavy Industry

- Formed Steel Construction
- Two Rows of Ball Bearings
- Hardened Ball Races
- Hardened Steel Balls
- Hardened Thrust Collar
- Bolt and Sleeve Axle
- Hyatt Roller Bearing
- Hardened Roller Races
- Machined Wheel Face
- Grease Gun Fittings

The Thomas Super caster is all that its name implies—Super in construction and performance under severe service where most casters are unsatisfactory. Use them for your hardest, toughest jobs to carry heavy loads and swivel easily.

The Super fork is formed from one piece of ¼" steel plate, offset for added strength. Ball race cups and King bolt welded in place and all moving parts are hardened to move freely and resist wear. All parts oversize with extra heavy metal wheels.

ONE OF MANY THOMAS CASTERS

Thomas makes rubber tired and metal wheel casters for every purpose . . . 4-wheel trucks, 2-wheel trucks, trailers, wagons, dollies, all illustrated and fully described in the new Thomas catalog No. 43.

Write for it today.

STOCKS CARRIED BY THESE WESTERN REPRESENTATIVES:

W. T. BILLARD
536 W. Washington Blvd.
Los Angeles 15, Calif.

GEO. W. GODDARD CO.
24th St. and Wall Ave., Ogden, Utah
Phone 600: Home 4654

BURT-KLINE COMPANY
7 Front St., San Francisco 11, Calif.
Phone: YUkon 2231

THE MURRAY SALES CO.
18 Wazee Market, Denver 4, Colo.
Tabor 2584

L. W. KEENAN
604 N.W. Sixth Ave.,
Portland 9, Oregon

G. M. LOVSTED & CO., Ltd.
1016 Mainland Street
Vancouver, B.C., Canada

WASHINGTON CYCLE & SUPPLY CO.
502 First Ave. South, Seattle 4, Wash.

THOMAS TRUCK & CASTER CO.
846 Mississippi River — Keokuk, Iowa

Thomas makes

PLATFORM TRUCKS
Hardwood or steel frames . . . balance or non-tilt types . . . 4 & 6 wheel . . . 11 platform sizes . . . over 20 capacities.

JAK - TUNG TRUCKS
Hardwood deck, with or without steel frames . . . standard models, heavy duty models and the new lift truck Jak-Tung.

WAGONS
5th Wheel Wagon - truck. Hardwood or steel frames. 10 platform sizes, 10 capacities. . . . Also Safety Wagon trucks in 15 platform sizes.

TRAILERS
Industrial foundry and warehouse trailers. 5 basic models. 7 capacities. Manual and automatic hitches.

DOLLIES
Hardwood and steel. Balance and non-tilt types. 4 and 6 wheels. 15 types.

2 WHEEL TRUCKS
Hardwood and steel frames. For every material and freight handling job. 46 types.

CASTERS
A major part of our business. New catalog illustrates 18 different casters in hundreds of sizes.

WHEELS
Metal and rubber and leather in a dozen types and in hundreds of sizes.

Timm Glider Case Is A Guide For Western Surplus Disposals

DISPOSAL of the $8,000,000 surplus stock resulting from the cancellation of the Timm Aircraft Corporation glider contract in a period of 60 days not only indicates what varied channels may be used to move other surpluses, but also is a feat for which an "E" might well be awarded to Brig. Gen. Donald F. Stace, Western District Supervisor of the AAF Technical Service Command, and his staff.

Usable materials, parts and tools were distributed among other aircraft manufacturers and Army Air Forces depots; scrap metals were sold for remelting; and wooden parts for which no market existed were donated to Army and Navy hospitals, the Boy Scouts, the Red Cross and the Los Angeles public schools for vocational training.

Where 80 per cent or more of a part or assembly had been completed permission was given to finish the item.

Subcontractors, including some of the largest furniture manufacturers on the West Coast, were doing about 80 per cent of the fabrication with materials supplied by Timm.

Since the contract was on a cost-plus-a-fixed-fee basis, all the material involved was Government property. Consequently it was the sole responsibility of the procuring agency, in this case the AAF Technical Service Command, to dispose of such property as quickly and effectively as possible so that the plant could be freed for new contracts.

One of the first moves by the two officers placed in charge of the problem, Col. W. H. Dayton, Assistant District Supervisor, and Lt. Col. Howard M. Rix, Materiel Command Resident Representative at the Timm plants, was to contact other glider manufacturers throughout the country as possible outlets. Several of these manufacturers went so far as to send representatives with lists of shortages to make a survey of the surplus stock and to pick out what they could use. Unfortunately each glider manufacturer had his own set-up, with his own peculiar production problems. In many cases it would have been more expensive as well as more difficult to transfer materials and parts to other glider manufacturers even though they could be used. In the end, approximately ten carloads of material, ranging from raw stock to sub-assemblies, were disposed of through these outlets.

Fortunately, a large proportion of the remaining materiel, fuselages, wings, empennages and various other sub-assemblies could be used as spares so the Air Service Command took ten carloads of spares, aircraft hardware and tools for use in Los Angeles and vicinity. Seventy-five additional carloads were shipped to a specialized Air Service Command depot in the east and the entire shipment was completed in less than ten days. A large quantity of aircraft material was sent to Brazil.

The remainder of the stock which the government could not take was sold to authorized dealers at prices permitted by regulations. Cutting tools, hand tools, paints and other items went to their respective jobbers or to specialized Army depots.

This still left a tremendous quantity of wooden parts ready for the assembly line —a warehouse-full of ribs, stringers, spars, cockpit fixtures and the like. No market existed for this material, which had been declared scrap. The only bid received was from a toy manufacturer who offered a fraction of one per cent of its value.

In view of this fact, Western Procurement District personnel decided to take advantage of an act of Congress which provided that scrap could be disposed of by donation to hospitals, schools and charitable or tax-supported institutions for vocational training purposes. Accordingly, 30 truckloads of wooden parts were sent to Army and Navy hospitals and 170 truckloads were donated to the Los Angeles city schools. Ten truckloads more went to the Boy Scouts, the Red Cross and similar organizations.

It was felt that the small amount of money that might have been realized from the sale of this material as scrap was more than offset by the benefits to be derived for years to come by school children and service men through its use in vocational training programs.

The materials proved to be a lifesaver for the city schools, many of which were having difficulty carrying on their vocational training programs because of their inability to get sufficient supplies. In many instances the students were providing their own materials with which to work in class. This meant the curtailment of vocational training in some sections of the city where it was most needed. With the materials from Timm continuance of programs in full was assured.

Many letters of appreciation were re-

(Concluded on Page 40)

Bargains in Odd Lots and Oddments Not Always What They Seem

If you think you have troubles, just listen to a few of those experienced by Major Albert Baehr, chief of the Property Disposal Section, Western Procurement District, AAF Technical Service Command:

Just who would be a likely buyer for surplus wheels for B-24 bombers? Nice big, fat tires, weighing probably 500 lbs. each and standing several feet high? Any baby buggy or tractor manufacturers interested?

Into his office the other day came Mr. Brilliant Idea, who was going to buy up just lots of metal sheets which could be used to manufacture certain household equipment at a low price, and thereby build a big market for the manufacturers to whom he would supply the metal. Upon learning that the supply would not be great enough to carry on this manufacturing very long, after which he would have to raise the price and find himself out in the cold, he retired, a sadder but wiser man. Besides, WPB rules stood in the way of the purchase.

And then there are landing lights galore . . . mebbe good for the garden or factory . . . but just wait, they're all d.c. instead of a.c., high current, low voltage. One big electrical manufacturer spent plenty before the war unsuccessfully trying to adapt automobile headlights, which are much the same thing, to other uses, but the filament only had a few hours' life.

Screws and other hardware . . . well, automobile manufacturers all adopted SAE standards, but each aircraft manufacturer started out to be different, so the replacements would all be channeled back to him. Also, it is impossible to describe the hardware, short of furnishing a blueprint, except by number, because an airplane bolt, for example, bears no resemblance to an ordinary bolt except that it has a head and threads.

Metal easily disposed of? Unfortunately, most of it is built for aircraft and not easily workable for other uses. The steels, for example, are not production steels.

Why can't the aircraft manufacturers just trade this surplus back and forth with each other direct and thus clean up a lot of it? Sounds fine, but life is too short for one purchasing agent to shop all around looking for one bolt like this, two eight-inch lengths of that, or one left-handed monkey-wrench with the threads going southeast instead of northwest. Or for the surplus man to spend all afternoon and the next morning hunting for it in his own stock. Much easier to go to the regular supplier, who knows what is wanted and can get it to you quick.

Ultimate answer on much of this surplus is to get it into the hands of regular dealers in hardware, etc., on a consignment basis. Unfortunately, there is no such word as consignment in the armed services dictionary. Consequently the satisfactory, although slow and roundabout, way is to turn it over to Metals Reserve Company who can consign it to the logical dealer . . . which is what is being done, bit by bit.

POWER MIGHTY AIR THRIFTY

Thor

PORTABLE AIR GRINDERS

FOR FAST, EASY WORK...

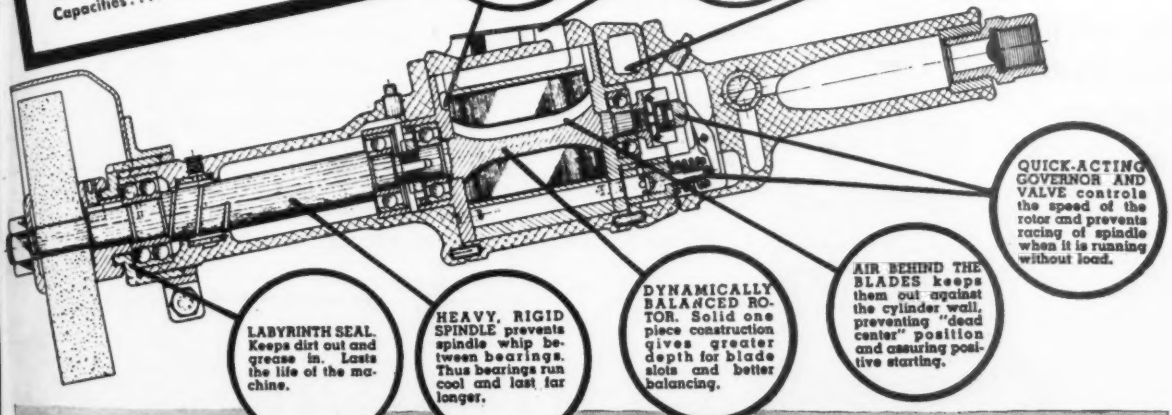
AT LESS COST ON EVERY GRINDING JOB!

For power that gets all types of heavy duty grinding done faster, easier . . . for money saved through the advantages of "measured air" performance and sturdy, sealed construction that insures longer service, Thor Portable Air Grinders offer these "Power Mighty-Air Thrifty" features on every job in shop and foundry.

Thor Air Grinders are available in a complete range of sizes and models, carefully graduated as to weights, lengths, speeds and wheel capacities. Heavy duty models shown here can be furnished with straight, grip or lever throttles.

LOOK AT THE RANGE!

Weights	18 oz. to 24 lbs.
Lengths	5½" to 39"
Speeds	3,000 to 21,000 r.p.m.
Capacities	1½" to 8" dia. wheels


END EXHAUST eliminates exhaust holes or slots from cylinder bushing, reducing wear of rotor blades to an absolute minimum.
MUFFLER FOR EXHAUST effectively cuts down high pitch noise.
LARGE OIL CHAMBER automatically supplies the motor with correct amount of oil, giving blades and cylinder bushing longer life.
QUICK-ACTING GOVERNOR AND VALVE controls the speed of the rotor and prevents racing of spindle when it is running without load.
AIR BEHIND THE BLADES keeps them out against the cylinder wall, preventing "dead center" position and assuring positive starting.
DYNAMICALLY BALANCED ROTOR. Solid one piece construction gives greater depth for blade slots and better balancing.
HEAVY, RIGID SPINDLE prevents spindle whip between bearings. Thus bearings run cool and last far longer.
LABYRINTH SEAL. Keeps dirt out and grease in. Lasts the life of the machine.

Write today for complete specifications and information of Thor Portable Air Grinders and other Thor Air Tools for industry in Catalog 32-B.

Thor Portable Pneumatic and Electric Tools

INDEPENDENT PNEUMATIC TOOL COMPANY

600 W. JACKSON BOULEVARD, CHICAGO 6, ILL.

Branches in Principal Cities

6200 E. Slauson Ave., Los Angeles, Calif.
315 S. Van Ness Ave., San Francisco, Calif.
1741 First Ave., S., Seattle, Wash.
54 E. Fourth, Salt Lake City, Utah

TIMM GLIDER CASE *(Contd. from Pg. 38)*

ceived by the Western Procurement District for its action. Typical was a letter from the vocational training head of one of the Naval hospitals expressing gratitude for supplying "materials that otherwise would have been impossible to obtain." Another letter told how Timm materials were being used by vocational training students to make toys for distribution to underprivileged children.

The metal scrap accumulated as a result of the termination was sold to regular scrap dealers in accordance with existing regulations which require that it be returned to the steel mills for remelting.

Although there was an interval of several months between the date the notice of termination was received by the Western Procurement District and the date the last truckload of material was removed from the plant, actual disposal of material was accomplished within a period of 60 days.

• West Coast diesel engine group welcomes national secretary at meeting in San Francisco. From left, standing: E. B. Scott, Enterprise Engine & Foundry Co.; W. P. Wooldridge, Joshua Hendy Iron Works; Howard Oxsen, Fairbanks, Morse & Co.; Chas. G. Cox, Enterprise Engine & Foundry Co.; David R. Lane, Union Diesel Engine Co.; seated, Gerald Brusher, Enterprise; Roy F. Anderson, Lorimer Diesel Engine Co.; W. M. Griffith, Atlas Imperial Engine Co.; Harold D. Ellis, Diesel Engine Manufacturers Association; Roger Murray, Fairbanks, Morse & Co.; G F. Twist, Atlas Imperial Diesel Engine Co.

Pacific Car Gets Midwest Facilities

Additional manufacturing facilities have been obtained in Centerville, Iowa, for production of Pacific Car and Foundry's Model E. Carcowinch. Until now, manufacture of this equipment has been carried on at the Renton, Washington, plant, but mounting contracts for production of war materials in this factory have made new facilities necessary.

Pacific Car and Foundry's Renton plant will continue to build other models of Carcowinches, double drum hoists and other Carco logging equipment. In addition, this plant, which formerly manufactured M-4 tanks, subcontracts wing spars for Boeing and handles marine contracts.

In addition to its new Iowa plant, Pacific Car and Foundry also operates a plant at Billings, Montana, where tank recover units are being built, and in Everett where the Everett Pacific shipyards are busy handling war and civilian contracts.

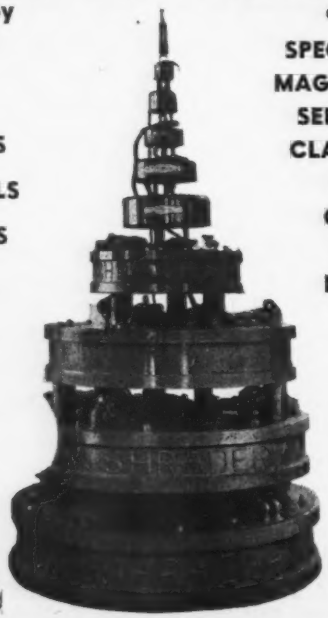
Steam Trucks

Steam engines will come back in a few years, especially for heavy-duty freight trucks, according to Ab Jenkins, former mayor of Salt Lake City, and now an expert consultant on motor equipment for the Army.

Electro-Magnets
FOR EVERY PURPOSE

used by
ARMY
NAVY
SHIPYARDS
STEEL MILLS
FOUNDRIES
ETC.

also
SPECIAL TYPE MAGNETS FOR SEPARATING CLASSIFYING HOLDING OR OTHER SPECIFIC PROBLEMS



IMMEDIATE DELIVERIES

F. W. SHRADER CO.
5788 WASHINGTON BLVD. CULVER CITY, CALIF.

HUSKY Forgings

. . . Made from our own controlled quality steel. Today Isaacson-forged shafting turns the wheels of a vast number of the nation's ships. Tomorrow the experience, spanning two wars, will again be yours for winning the peace.

ISAACSON
Iron Works
SEATTLE

FRIDÉN

FULLY AUTOMATIC CALCULATOR

producer of

Winged Figures

SPEED! SPEED! SPEED! so urgently needed in Accurate Figure Work is produced by this amazing Calculator. Set both factors of any calculation . . . touch ONE KEY . . . and *presto,* the answer appears without effort on the part of operator. FRIDĒN Fully Automatic Calculators are Available when applications to obtain deliveries have been approved by the War Production Board. Telephone or write your local Fridén Representative for complete information.

FRIDĒN Mechanical and Instructional Service is available in approximately 250 Company controlled Sales Agencies throughout the United States and Canada.

FRIDĒN CALCULATING MACHINE CO., INC.

EXECUTIVE OFFICES AND PLANT • SAN LEANDRO, CALIFORNIA, U. S. A.

Future Sketched For Richmond Shipyards

SOME speculating, predicting, imagineering or whatever you may wish to call it, on the future of the Richmond Shipyards is done by Clay Bedford, general manager of this portion of the Kaiser enterprises, in the September 1 issue of the shipyard paper, Fore 'n' Aft.

"It has been estimated," he says, "that our shipyard facilities could be converted within three days for production of railroad trains—and within only a little more time to manufacture of plane assemblies, of heavy-duty trucks, or of refrigerators and other heavy household appliances."

Nothing definite is stated about the possibility of such operations coming true, although he does say "on the drafting board right now are plans for mass-produced helicopters, for stream-lined divided highways, for super-speedy lightweight electric trains."

More specific is the prediction about prefabricated housing with single-unit prefabricated kitchen and bathroom, as follows:

"You can put it down as a definite prospect for the future, because—as has already been announced—Henry Kaiser has already taken over the lease and operation of the $20,000,000 Standard Gypsum Co. in a 50-50 partnership agreement to develop and expand the plants and the market for gypsum products.

"The concern would mass produce the 'core of postwar houses,' including interior wall panels and whole sections like kitchen, bath and laundry, using plastic cement, lightweight steel and fireproof and soundproof gypsum wallboards. Kaiser has announced plans to erect an East Bay plant to turn out such products, perhaps in the Yard Two area if and when shipbuilding contracts are completed by Yard Two workmen."

Regarding a foreign trade zone in Richmond, Mr. Bedford reports that plans for changing Yard One into such an institution at a cost of about $2,000,000 have been developed by the Kaiser organization and all that remains to be supplied is necessary public support because a free port is a public, not a private enterprise.

"Where Yard One's shipways now reach the water," he says, "imagine instead the docks of a Foreign Trade Zone, equipped with every facility for unloading and storing foreign goods pending sale or shipment. The site has all the necessary features. It has unexcelled warehousing and storage space. It offers plenty of room for expansion adjacent to port facilities.

"Unlike any other such site in the Bay area, it meets the requirement for a Foreign Trade Zone of being isolated. It is the center of a highly industrialized area, offering an adequate supply of labor, adjoining a major oil center and ship repair facilities."

WALSEAL

The modern fitting designed to improve copper and brass piping

The latest proven advance in leakproof piping. A threadless silver brazed connection with the brazing alloy incorporated as a ring in the port openings of the fittings and valves.

EASY TO ASSEMBLE • ECONOMICAL
VIBRATION PROOF • CORROSION RESISTANT
FIRE RESISTANT

Answers the problems encountered in the fabrication of non-ferrous piping. Used in most of Uncle Sam's combat ships.

WALWORTH CALIFORNIA CO.
Distributors of WALWORTH Quality Products and Allied Industrial Lines
"BRING YOUR PIPING PROBLEMS TO WALWORTH"
[illegible] SIXTH STREET • GArfield 3950 • SAN FRANCISCO 1, CALIF.

Rubber's Use In War and Peace

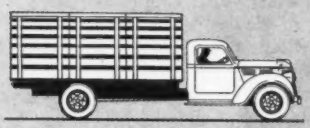
Present-day warfare uses up as much rubber in two months as the country needs in peace time for a whole year, according to F. B. Davis, Jr., chairman of the board of United States Rubber Company, speaking before the Commonwealth Club in San Francisco. For every man in service there has to be 145 pounds of rubber manufactured, and every bomber requires half a ton of rubber, while B-29's take four times that much.

Among future uses of rubber that he predicted were a film of the material covering the walls or rooms through which the heating would be done. He also said foam rubber had great possibilities.

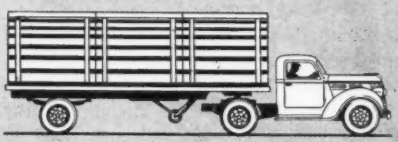
Small Salmon Pack

Alaska's canned salmon pack for 1944 to August 26 totalled 4,466,515 cases, the lowest in seven years.

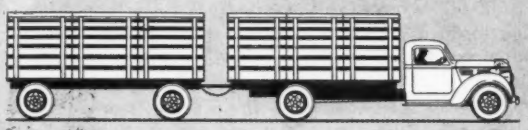
HERE'S WHAT A 1½ TON TRUCK CAN *really* HAUL



AS A TRUCK **2½ TO 4 TONS**



AS A SEMI-TRAILER **6 TO 9 TONS**



AS A TRUCK-TRAILER **9 TO 12 TONS**

If you can't buy more trucks, then why not let each truck pull a Trailer in addition to its own load? Or, convert it into a Truck-Trailer with a much larger capacity.

ODT officials and truck operators agree that in these days of equipment shortages a Trailer should be added to every truck that can haul it. Today's trucks are built with plenty of power to spare . . . they can *pull* 2 to 6 times more than they can carry. Trailers also use less critical materials. If you're not making full use of your truck's horsepower, consult your nearest Fruehauf Branch to see what can best be done to increase their load capacity.

World's Largest Builders of Truck-Trailers

FRUEHAUF TRAILER COMPANY

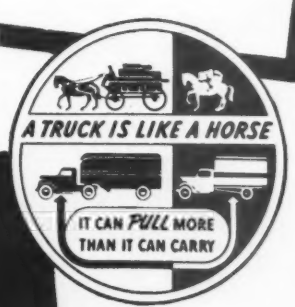
Western Manufacturing Plant — Los Angeles

Sales and Service Branches

Portland
Phoenix
Los Angeles
Fresno
Salt Lake City
Seattle
San Francisco
San Diego
Denver
Spokane

FRUEHAUF TRAILERS ARE AVAILABLE

Consult your Fruehauf Branch to determine your specific needs, then apply for a Certificate of Transfer by filing application form WPB663 (formerly PD310). Your Fruehauf Branch will gladly help you make application.



FRUEHAUF TRAILERS

ENGINEERED TRANSPORTATION
Reg. U. S. Pat. Off.

Western Future Needs More Farm Production

One of the best-informed writers at the Nation's Capital, Arnold Kruckman, presents each month authoritative comments on political developments and their practical application to industry of the West. Any reader who wishes additional information may write to him directly, using business letterhead, at 1120 Vermont Avenue, N.W., Washington, D.C. Inquiries will be answered free of charge. You also are invited to contact him personally in Washington. Copies of pending congressional bills may also be obtained free of charge.

By ARNOLD KRUCKMAN

BUREAU of the Census, always properly cautious, has just conservatively reported that the Pacific West has gained 2,000,000 net population since 1940. The new people are in California, Washington, Oregon, Arizona, Utah, and Nevada; and the preference of their choice is indicated in the sequence in which the states are mentioned.

Census gives California 1,400,000 new people, Washington 250,000, Oregon 140,000, Arizona 80,000, Utah 40,000, and Nevada 30,000. Census makes this interesting observation:

"Even without allowance for the movement of the armed forces, which is not included in the estimates of net migration, it is safe to say that *there has been more movement of people in the United States since 1940 than in any other period of the same length in the history of the country.*"

During the past four years 30 states have lost 3,400,000 population, and six Far Western states have gained 2,000,000 new population. In other words, approximately 60 per cent of all the people who left New England, the East, the South, the Mid-West, according to the careful census figures, added new population to California, Oregon, Washington, Utah, Nevada, and Arizona.

Somewhere between 14,000,000 and 15,000,000 persons eventually will be released from our armed services; it is estimated between 2,000,000 and 3,000,000 will go back West because they came from there, and if the drift is sustained at the tempo set by the war workers it means from 6,000,000 to 7,000,000 veterans will try to find something to do in the West. And there will be more civilians, war workers, who will be restless and impatient to go into the new country.

These problems unquestionably have given you people out there many thoughtful hours. We Westerners here in the Capital have done much speculating. Many of us here have been much interested by the thoughts of Bill Herron, who represents the Los Angeles Chamber of Commerce. Herron not only sees we must make plans to keep the new population we have acquired, but we must prepare to absorb the population which will seek to come out after the war.

In his exploration of the subject Herron encountered Dr. John L. Coulter and Carl H. Wilken. Dr. Coulter has been a member of the U. S. Tariff Commission, president of the State Agricultural College of

BETTER INKS BETTER DELIVERIES
City TRANSPORT
YOUR SHIPMENTS are IMPORTANT
Whatever their destination...CLEAR ...EASILY READ...PERMANENT STENCILLED ADDRESSED SHIPMENTS will help to speed and insure their delivery on time. Diagraph-Bradley non-settling, non-clogging stencil and marking inks have been developed through 50 years of research to do the best job of marking for you.
DIAGRAPH-BRADLEY
STENCIL CUTTING MACHINES
FOR CUTTING LETTERS
½", ¾", ⅞", 1¼", 1½" and 1¾" HIGH
Most export shipments require 1½" letters, or larger
DIAGRAPH STENCIL INK
DIAGRAPH STENCIL INK
D-B.
DIAGRAPH-BRADLEY
STENCIL MACHINES
DIAGRAPH-BRADLEY STENCIL MACHINE CORPORATION
NO. 32 DIAGRAPH BRADLEY BUILDING
ST. LOUIS 8, MISSOURI
DISTRIBUTORS IN PRINCIPAL CITIES
COMPLETE SHIPPING ROOM SUPPLIES
WORLD'S OLDEST AND LARGEST MANUFACTURER OF STENCIL MACHINES

North Dakota, and director of several state agricultural experimental stations. He is farm-born and operates some farms now. As a member of the U. S. Tariff Commission he has visited 20 or 25 foreign countries to study imports and exports. Wilken is the economic analyst of the National Association of Commissioners, Directors, and Secretaries of Agriculture. He spent some time in San Francisco recently as economist for the Builders of the West.

Both Coulter and Wilken have studied our Western problems. They hold it is inevitable that there must be more agricultural production before there is expansion of additional industrial production. They are convinced the springboard for our future is the 15,000,000 acres, more or less, the Bureau of Reclamation has urged upon the Special Committee on Post-War Economic Policy and Planning which is headed by Senator George, with Senator Hayden of Arizona in charge of the discussion of the Reclamation program.

Senator Hayden and Reclamation Commissioner Harry Bashore, in an interesting series of hearings, have shown how this acreage can be brought under irrigation over a period of years. The program would create 135,000 new farms, and many new towns with new businesses, in the West. Wilken has assembled abundant data that show our economic life rests upon 65 per cent agricultural production and 35 per cent mineral production. His graphs show every man on the farm creates work for six others in our economy; each dollar created in farm income in turn creates a total of $7 of national income.

Bashore's post-war reclamation program would vitalize mining and steel mills, aluminum and magnesium plants, and the processing and manufacturing plants which make multifarious things that would employ much of the population, and provide the materials and the commodities the West can send East and export overseas.

The testimony before the Senate Committee strikingly emphasizes America has passed the point where we have any agricultural surplus.

It was brought out that our natural increase in population has been sustained at a minimum of 1,000,000 a year for many years, and that we require an increase of four acres per person to maintain our standards. Wilken showed we reached the end of our natural development of the farm lands in the East in 1920, and that there was actually a recession in acreage in 1943.

Dr. Coulter recited statistics which revealed that we were exporting tremendous supplies of cotton, wheat and other products 20 or 30 years ago while now we are importing more products of agriculture than we are exporting. He revealed that until the war came we were importing, mostly from the East Indies, tapioca, arrowroot, and similar starch bases to the extent of 500,000,000 pounds per year, and were taking them from an area where millions were hungry or starving for lack of the foods they surrendered.

He showed we could supply our own needs by growing potatoes, sweet potatoes, and other starch bases, and utilize added millions of our own acres. According to Dr. Coulter, again, we have been importing more than 2,000,000,000 pounds of sugar a year from the China coast, and more from the Philippines, while the people of China and India were starving; and we have the acres upon which we can develop our own sugar.

He also suggested we might continue to produce more of the rubber we need with the materials we grow in our country and release some of the acreage in Malay, Java, Sumatra, and Siam, from which we take normally a billion pounds of rubber a year. He suggested before the war we took 2,000,000,000 pounds fats and oils from abroad each year which we have demonstrated we can produce abundantly on our own acres. From his experience as a member of the U. S. Tariff Commission he cited a large list of products we can bring in huge volume from abroad.

Speaking generally, Westerners in the capital, on the Hill as well as elsewhere in the community, are convinced the huge post-war reclamation program proposed by

(Cont'd on Page 46)

Synalite Reports

EXCELLENT MECHANICAL GOODS SERVICE

Synalite is Pioneer's Super-Synthetic Rubber Compound

PROPERTIES		Synalite	NATURAL RUBBER
Tensile Strength		Good	Excellent
Resilience (Snap)		Good	Excellent
Flexibility		Excellent	Excellent
Adhesion to Metals		Excellent	Excellent
Adhesion to Fabrics		Excellent	Excellent
Resistance to	Abrasion	Excellent	Excellent
	Heat	Excellent	Good
	Cold	Excellent	Very Good
	Compression Set	Good	Excellent
	Oils	Excellent	Poor
	Chemicals	Excellent	Good
	Sunlight	Excellent	Fair

Research to improve on this record is continuing right now, and every day in Pioneer's development laboratory—to insure you the best possible service from available synthetic rubbers. Remember—Pioneer is working with all the basic Synthetic Rubbers to develop the best possible compounds for use in your Industrial Rubber Goods. Pioneer Rubber Mills, 353 Sacramento St., San Francisco, 11, Cal.

682

PIONEER

Job Tailored BELTING • HOSE • PACKING

Western Future Needs More Farm Production

One of the best-informed writers at the Nation's Capital, Arnold Kruckman, presents each month authoritative comments on political developments and their practical application to industry of the West. Any reader who wishes additional information may write to him directly, using business letterhead, at 1120 Vermont Avenue, N.W., Washington, D.C. Inquiries will be answered free of charge. You also are invited to contact him personally in Washington. Copies of pending congressional bills may also be obtained free of charge.

By ARNOLD KRUCKMAN

BUREAU of the Census, always properly cautious, has just conservatively reported that the Pacific West has gained 2,000,000 net population since 1940. The new people are in California, Washington, Oregon, Arizona, Utah, and Nevada; and the preference of their choice is indicated in the sequence in which the states are mentioned.

Census gives California 1,400,000 new people, Washington 250,000, Oregon 140,000, Arizona 80,000, Utah 40,000, and Nevada 30,000. Census makes this interesting observation:

"Even without allowance for the movement of the armed forces, which is not included in the estimates of net migration, it is safe to say that *there has been more movement of people in the United States since 1940 than in any other period of the same length in the history of the country.*"

During the past four years 30 states have lost 3,400,000 population, and six Far Western states have gained 2,000,000 new population. In other words, approximately 60 per cent of all the people who left New England, the East, the South, the Mid-West, according to the careful census figures, added new population to California, Oregon, Washington, Utah, Nevada, and Arizona.

Somewhere between 14,000,000 and 15,000,000 persons eventually will be released from our armed services; it is estimated between 2,000,000 and 3,000,000 will go back West because they came from there, and if the drift is sustained at the tempo set by the war workers it means from 6,000,000 to 7,000,000 veterans will try to find something to do in the West. And there will be more civilians, war workers, who will be restless and impatient to go into the new country.

These problems unquestionably have given you people out there many thoughtful hours. We Westerners here in the Capital have done much speculating. Many of us here have been much interested by the thoughts of Bill Herron, who represents the Los Angeles Chamber of Commerce. Herron not only sees we must make plans to keep the new population we have acquired, but we must prepare to absorb the population which will seek to come out after the war.

In his exploration of the subject Herron encountered Dr. John L. Coulter and Carl H. Wilken. Dr. Coulter has been a member of the U. S. Tariff Commission, president of the State Agricultural College of

BETTER INKS BETTER DELIVERIES
City TRANSPORT
YOUR SHIPMENTS are IMPORTANT
Whatever their destination... CLEAR ...EASILY READ...PERMANENT STENCILLED ADDRESSED SHIPMENTS will help to speed and insure their delivery on time. Diagraph-Bradley non-settling, non-clogging stencil and marking inks have been developed through 50 years of research to do the best job of marking for you.
DIAGRAPH-BRADLEY
STENCIL CUTTING MACHINES
FOR CUTTING LETTERS
½", ¾", ⅞", 1¼", 1½" and 1¾" HIGH
Most export shipments require 1½" letters, or larger
DIAGRAPH STENCIL INKS
DIAGRAPH STENCIL INKS
COMPLETE SHIPPING ROOM SUPPLIES
D-B. DIAGRAPH-BRADLEY
STENCIL MACHINES
DIAGRAPH-BRADLEY STENCIL MACHINE CORPORATION
NO. 32 DIAGRAPH BRADLEY BUILDING
ST. LOUIS 8, MISSOURI
DISTRIBUTORS IN PRINCIPAL CITIES
WORLD'S OLDEST AND LARGEST MANUFACTURER OF STENCIL MACHINES

North Dakota, and director of several state agricultural experimental stations. He is farm-born and operates some farms now. As a member of the U. S. Tariff Commission he has visited 20 or 25 foreign countries to study imports and exports. Wilken is the economic analyst of the National Association of Commissioners, Directors, and Secretaries of Agriculture. He spent some time in San Francisco recently as economist for the Builders of the West.

Both Coulter and Wilken have studied our Western problems. They hold it is inevitable that there must be more agricultural production before there is expansion of additional industrial production. They are convinced the springboard for our future is the 15,000,000 acres, more or less, the Bureau of Reclamation has urged upon the Special Committee on Post-War Economic Policy and Planning which is headed by Senator George, with Senator Hayden of Arizona in charge of the discussion of the Reclamation program.

Senator Hayden and Reclamation Commissioner Harry Bashore, in an interesting series of hearings, have shown how this acreage can be brought under irrigation over a period of years. The program would create 135,000 new farms, and many new towns with new businesses, in the West. Wilken has assembled abundant data that show our economic life rests upon 65 per cent agricultural production and 35 per cent mineral production. His graphs show every man on the farm creates work for six others in our economy; each dollar created in farm income in turn creates a total of $7 of national income.

Bashore's post-war reclamation program would vitalize mining and steel mills, aluminum and magnesium plants, and the processing and manufacturing plants which make multifarious things that would employ much of the population, and provide the materials and the commodities the West can send East and export overseas.

The testimony before the Senate Committee strikingly emphasizes America has passed the point where we have any agricultural surplus.

It was brought out that our natural increase in population has been sustained at a minimum of 1,000,000 a year for many years, and that we require an increase of four acres per person to maintain our standards. Wilken showed we reached the end of our natural development of the farm lands in the East in 1920, and that there was actually a recession in acreage in 1943.

Dr. Coulter recited statistics which revealed that we were exporting tremendous supplies of cotton, wheat and other products 20 or 30 years ago while now we are importing more products of agriculture than we are exporting. He revealed that until the war came we were importing, mostly from the East Indies, tapioca, arrowroot, and similar starch bases to the extent of 500,000,000 pounds per year, and were taking them from an area where millions were hungry or starving for lack of the foods they surrendered.

He showed we could supply our own needs by growing potatoes, sweet potatoes, and other starch bases, and utilize added millions of our own acres. According to Dr. Coulter, again, we have been importing more than 2,000,000,000 pounds of sugar a year from the China coast, and more from the Philippines, while the people of China and India were starving; and we have the acres upon which we can develop our own sugar.

He also suggested we might continue to produce more of the rubber we need with the materials we grow in our country and release some of the acreage in Malay, Java, Sumatra, and Siam, from which we take normally a billion pounds of rubber a year. He suggested before the war we took 2,000,000,000 pounds fats and oils from abroad each year which we have demonstrated we can produce abundantly on our own acres. From his experience as a member of the U. S. Tariff Commission he cited a large list of products we can bring in huge volume from abroad.

Speaking generally, Westerners in the capital, on the Hill as well as elsewhere in the community, are convinced the huge post-war reclamation program proposed by

(Cont'd on Page 46)

Synalite Reports

EXCELLENT MECHANICAL GOODS SERVICE

Synalite is Pioneer's Super-Synthetic Rubber Compound

PROPERTIES		Synalite	NATURAL RUBBER
Tensile Strength		Good	Excellent
Resilience (Snap)		Good	Excellent
Flexibility		Excellent	Excellent
Adhesion to Metals		Excellent	Excellent
Adhesion to Fabrics		Excellent	Excellent
Resistance to	Abrasion	Excellent	Excellent
	Heat	Excellent	Good
	Cold	Excellent	Very Good
	Compression Set	Good	Excellent
	Oils	Excellent	Poor
	Chemicals	Excellent	Good
	Sunlight	Excellent	Fair

Research to improve on this record is continuing right now, and every day in Pioneer's development laboratory—to insure you the best possible service from available synthetic rubbers. Remember—Pioneer is working with all the basic Synthetic Rubbers to develop the best possible compounds for use in your Industrial Rubber Goods. Pioneer Rubber Mills, 353 Sacramento St., San Francisco, 11, Cal.

682

PIONEER

Job Tailored BELTING • HOSE • PACKING

KRUCKMAN *(Cont'd from Page 45)*

Commissioner Bashore, with its related Western industrial and commercial expansion, is sound and thoroughly justified. Obviously, the farm states of the plains and the South, will oppose it.

They are convinced there will be an agricultural surplus in many things, despite the fact that all signs indicate we will supply the world with many materials to relieve food and other shortages.

Some Eastern industrial and financial people regard the development of the West as premature, and a threat to the balance of the general economy. And as long as this uninformed misunderstanding exists, the members of Congress who represent the farm group and those who constitute the Southern bloc, will make it difficult for the West to get the aid necessary to develop the additional farm lands, and to put driving energy into the post-war development of Western industry and commerce.

Of course, we need a solid Western Congressional bloc just as the Southerners have one, and as the farmers and other minority groups have powerful unity blocs among their representatives in Congress. There is a lot of groundless fear over creating a bloc. With the size of this country being what it is, and with influence stemming almost solely from unified action by those who have identical interests, the bloc of the minority is the only practical method by which the minority can force attention.

But the trouble about a Western bloc does not start with the Western members of Congress; they are transparently ready to act as a Western bloc if the West wishes them to constitute themselves into a bloc. The trouble about the creation of a Western bloc is out there at home, among you.

We here think you must take a little time off from your local concerns, actively focus thought and time on consideration of some of the large problems of undebatable interest to all parts of the States on the Pacific Slope, and induce your leaders to get together to define these objectives in simple terms so they may be understood by every Westerner in all communities.

Then you will be on the way to the establishment of an over-all organization, a sort of League of the West, which will conflict with no local unit, and work in harmony with the general, over-all aims of all. When you get this result you will have something like the atmosphere of the Solid South, where essential politics are as unconsciously a part of a man's existence as brushing his teeth or combing his hair.

When approximately you begin to move towards a unity something like this, you will find your Congressional delegations will be as solid as any bloc in the United States. Meanwhile, to the observer at this end, it looks as if the next move is up to you, out there. These people here, such as Marsh of San Francisco, Herron of Los Angeles, Dodd of Portland, Hays of San Diego, and Underwood of Seattle, apparently have gone as far as they can move.

Available Now . . .

PROMPT, COMPLETE PARTS AND REPAIR SERVICE . . . FULL SALES INFORMATION

on these prominent equipment lines

- **AEROIL BURNER CO., INC.** Portable burners and heaters; degreasing and parts cleaning units; builder's power hoists.
- **AMERICAN STEEL & WIRE CO.** "Tiger Brand" Wire Rope.
- **BUCKEYE TRACTION DITCHER CO.** Ditchers, spreaders, "Clipper" shovels.
- **BUDA COMPANY** "Chore Boy" half-ton shop trucks, jacks; railroad maintenance-of-way equipment.
- **CHAIN BELT COMPANY** "Rex" mixers, pavers; "Pumpcrete" equipment; "Speed Prime" pumps.
- **CHICAGO PNEUMATIC TOOL CO.** Air compressors, pneumatic drills and tools; "Universal" electric drills and tools.
- **COFFING HOIST CO.** Ratchet-type hoists; chain hoists (hand and electric); load binders.
- **DEMPSTER BROS., INC.** "Dempster Dumpsters"; materials handling equipment.
- **INDUSTRIAL "HANDI-CRANE"** Full-revolving tractor crane.
- **KOHLER CO.** Generator sets and lighting plants.
- **LIDGERWOOD MANUFACTURING CO.** Contractor's hoists (gas, electric, Diesel, steam); dragline and cableway equipment.
- **LULL MANUFACTURING CO.** "Lull Universal" Hydraulic Front-end loaders; materials-handling equipment.
- **MANITOWOC ENGINEERING WORKS** "Speedcranes"; "Speedshovels"; Truck Cranes.
- **MINNEAPOLIS-MOLINE** Industrial Wheel-type tractors; gasoline engines and power units.
- **THOMAS BOOM STOP CONTROL**
- **UNION IRON WORKS** Pile hammers; tunnel air locks, shields and equipment.
- **VICTOR WELDING EQUIPMENT**
- **WHITE MANUFACTURING CO.** Concrete vibrators; and many other well-known tool, equipment and supply lines. Rental service offered on all types of contractor's equipment.

WRITE, WIRE IECO OR PHONE

INDUSTRIAL EQUIPMENT COMPANY

Northern California:
1301 - 59th Street, Emeryville • Phone Piedmont 8100

Southern California:
4441 Santa Fe Ave., Los Angeles 11 • Phone Kimball 7141

Need Bauxite Plants

George C. Heikes, former manager of the DPC aluminum plant at Tacoma operated by the Olin Corporation and now director of the WPB light metals division, told the House Irrigation and Reclamation Committee that the only hope of operation of the aluminum plants of the Northwest would seem to be through establishment of bauxite treating plants on the Pacific Coast. Although experiments in the use of domestic clays have not yet reached a stage of economical operation, he said, the experimentation should go on to make possible their use in another emergency.

One Lift Supersedes Five

Until recently it has required five crane lifts to land and assemble the reduction gear of a turbine for a Victory ship in the engine room, one each for gear housing, bull gear, two pinion gears and the cap. But in May of this year the Kaiser Vancouver shipyards landed a reduction gear as one unit and lately the Permanente Yards in Richmond performed this feat. After assembly the lift was made in 15 minutes, resulting in a considerable saving in handling time and reducing the work required of the cranes. Once landed, the big engine section was finished with no further assembly work.

Ship Libraries As Packing Material

By using whole magazines, newspapers and even paper-bound books as packing material for supplies which must be tightly packed in boxes, Benicia Arsenal has found a means of providing libraries for overseas bases without the use of critical shipping space.

The method also eliminates the expense of buying packing material, such as shredded paper or new cardboard, which when unpacked overseas only made a mess that someone had to clean up. Col. Paul G. Rutten, commandant of the arsenal, reports that letters received testify that the only reading matter received in some places is that which has come from Benicia as packing material.

Widespread adoption of the plan will insure that every overseas post, no matter how isolated or how small, will receive a considerable quantity of reading matter.

Nevada Metals Purchases Ending

After December 31 Nevada will have no Metals Reserve purchase depot for the receipt of ores or concentrates. Depots and stockpiles for manganese and chrome ores at Battle Mountain and Winnemucca will be closed on that date.

Since these stockpiles and receiving stations were established no chrome ore has been received and no chromite is known to exist in the state. The amount of manganese ore delivered is said to have been small, since little of the ore mined in tributary districts has been of sufficiently high grade to meet Metals Reserve specifications.

Metals Reserve said that at present there is a great excess of lower-grade manganese ore on hand, with ample supplies of a higher-grade ore coming in.

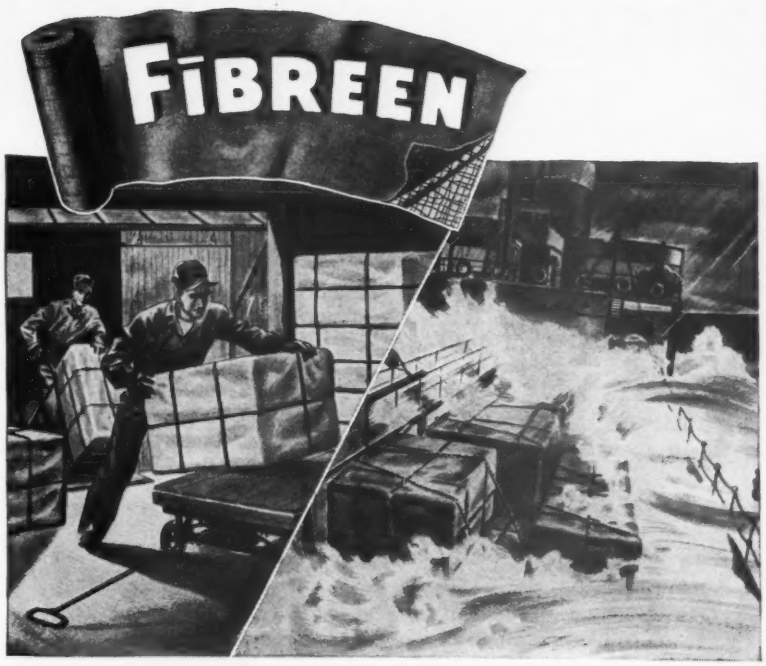
The lower-grade ore, it appears, includes a stockpile of some 33,000 tons at the Three Kids mine in Clark county, future disposal of which remains in doubt since the 1000-ton plant has proved incapable of treating the product.

Albuquerque Industry

Albuquerque, New Mexico, has a new industry, employing 200 mechanics. It is W. T. Wright, Inc., reconditioners of heavy machinery and equipment, such as tractors, winch trucks, and cranes. The concern is engaged in contract work for Standard Oil Company of New Jersey, and the reconditioned equipment is shipped to Venezuela, Colombia, Egypt and other places.

Conference at Salt Lake

Representatives of manufacturing concerns in all the intermountain states will meet in a one-day conference at the Hotel Utah, Salt Lake City, Oct. 17. Reed Stevens, president of the Utah Manufacturers Association, will preside.



. . . faithfully serving industry in its mightiest war production!

As manufactured equipment and supplies flow from our factories to fighting men overseas, FIBREEN assures their arrival in first class condition . . . ready for action. This waterproof, scuff-proof, tear-resistant wrapping material successfully protects war supplies from dampness, wind, rain, sleet, ice and salt water.

Kraft paper, reenforced with crossed layers of steel-like sisal fibre embedded in water-proof adhesive, makes a low-cost protective wrapping of unmatched durability. These properties of FIBREEN, so vital to the war effort, are ones you need to protect your postwar goods enroute to your customers.

Use FIBREEN to Cut Postwar Shipping Costs!

Losses in transit were cut from 18% to less than 1% when a manufacturer of powdery material lined freight cars with FIBREEN before loading. A leather manufacturer substituted FIBREEN for crates, burlap and paper, and made a substantial saving in wrapping cost *and transportation charges.* Sheet steel, formerly loaded by hand into box cars, was wrapped in FIBREEN and loaded by crane into open cars!—*saved thousands of dollars!*

These and many other examples of SISALKRAFT research and engineering service warrant your consideration. SISALKRAFT leadership is the result of the unmatched performance of its products and nearly 25 years in the development of better wrapping methods with sisal-reenforced sheets.

Ask SISALKRAFT to help cut your wrapping and shipping costs!

THE SISALKRAFT CO.
205 W. WACKER DRIVE · CHICAGO 6, ILL.
NEW YORK · SAN FRANCISCO · LONDON · SYDNEY

Manufacturers of SISALKRAFT, FIBREEN, SISAL-X, SISALTAPE AND COPPER-ARMORED SISALKRAFT

WESTERNERS AT WORK...

Arizona

L. Carl Holmes, now serving as president of Central Arizona Grower-Shipper Assoc. and vice president of Arizona State Farm Federation, is elected to board of directors of Phelps Dodge Corp.

California

R. E. Fisher, vice-president in charge of public relations and sales, P.G.&E., made vice-chairman of San Francisco Bay Region Council . . . E. R. Mertz resigns as chief metallurgist for Bendix Aviation Corporation, North Hollywood, organizes own firm of Mertz Heat Treating Co. at Van Nuys. . . . Builders of the West, Inc., open Pacific Northwest headquarters in Seattle, Frank C. Jackson directing activities. . . . H. A. Van Norman retires as head of Los Angeles' municipal water system, succeeded by Samuel B. Morris, dean of Stanford's engineering school. . . Ralph A. Lewis advanced to sales manager's post at Los Angeles Steel Casting Co. climaxing 12 years service with the company. . . D. W. Sanford named vice president of Goodyear Tire & Rubber Co. of California, succeeding J. E. Mayl who returns to Akron, Ohio, as head of the tire sales division. . . James A. Folger, of San Francisco, regional director of WPB, goes to Washington, D. C., for important additional duties of chief deputy vice chairman for field operations. . . Henry S. Wright succeeds Folger as acting regional director for the Pacific Coast. . . P. M. Pike acquires interest of Malleable Iron Fittings Co., J. R. Dickson and Katheryn B. Hacker in Hacker Pipe & Supply Co., Los Angeles, succeeds Dickson as president. . . E. D. Almy, assistant general manager, Joshua Hendy Iron Works, Sunnyvale, promoted to manager, company's Crocker Wheeler division; Harry Gunetti gets Almy's job; Robert Mann succeeds Gunetti as general supt.; Clifford Sayre, general night supt., becomes assistant general supt., succeeding Mann. . .Frank N. Belgrano, Jr., president of Central Bank, Oakland, now serving as regional chairman of CED in 7 western states. . . H. D. Haney takes over assistant vice president's desk at Tide Water Associated Oil Co., San Francisco, while continuing as manager of transportation; Gardner Blackman assumes C. R. Brown's duties as manager of industrial relations, Brown receiving additional responsibilities as assistant to the president. . . Donald B. MacAfee is new vice president in charge of sales at Benchmaster Manufacturing Co. of Los Angeles. . . Harvill Corp., Los Angeles, elects Harry R. Gillett executive vice president; Francis Petit, secretary; and A. J. Hanlon, production manager. . . Orrin R. Broberg granted leave of absence as assistant manager, engineering service, aircraft and transportation division, by Adel Precision Products Corp., Burbank, to join Office of Scientific Research and Development, Washington, D.C. . . . John Francis Drake and Theodore G. Kennard, Ph.D., form firm of Kennard and Drake with chemical and spectrographic laboratories at 4686 Santa Fe Ave., Los Angeles 11. . . Forrest G. Harmon resigns as president, Pacific Tube Co., Los Angeles; C. A. Warden, Jr., vice president, takes over; and R. H. Gabel becomes vice president in charge of engineering. . . R. W. Kerr, elected to board of directors of Plomb Tool Co., Los Angeles, also assumes responsibility for company's sales program. . . C. W. Erickson replaces E. E. Erich as general manager at Altoona quicksilver mine of Marsman Company of America. . . Lt. Commander John Tillia, USN, is former chief geologist for Kaiser Co.'s Iron and Steel Division, Fontana. . . Roy H. Elliott resigns as supervising engineer with RFC in San Francisco to reopen consulting mining engineering office in that city. . . H. H. Fuller takes office as vice president in charge of West Coast steel activities for Bethlehem Steel Co., following retirement of W. H. Stewart, who continues in advisory capacity. . . Don

WE THINK!

The winning of an Army-Navy "E" by a job shop handling 1001 jobs—each different, each requiring special tooling, special production engineering and control —is really something!

In fact the war has not changed the nature of our operations or production methods which began 15 years ago. It has demanded more speed and volume . . . it has made us far more careful . . . and 1/10000 of an inch looks as big as a mile sometimes—but the job is being done.

P.S. Yes, we can deliver on time to a few more customers IF you are on our post war production priority list now beine compiled.

WE THINK, and we are not alone in the opinion, that "V" DAY will be the beginning of the West's greatest peacetime production period. If you agree, you'll want an "E" production plant serving you.

James W Compas

PACIFIC
SCREW PRODUCTS CORP.
15 Years of Progress and Service
5211 Southern Ave., South Gate, Cal.
KImball 5211

Largest and Best Equipped Screw Machine Plant in the West

E. Gilman elected executive vice president of California Oil & Gas Association filling vacancy created by death of P. E. Foster.

Montana

Don G. Danielson comes to The Texas Company, at Cut Bank, from Butte, where he was assistant engineer for Anaconda Copper Mining Company.

New Mexico

Harold S. Martin, because of ill health, resigns position as manager of the Potash Division of the International Minerals and Chemical Corporation at Carlsbad after 6 years service; George T. Harley, former general superintendent, replaces him.

Oregon

Cliff Dunham takes over W. B. Morrow's job as personnel manager of Hyster Co., Portland, who in turn takes a new department, and Donald Foster replaces Dunham as manager of Chicago office. . . Capt. John Kitzmiller is back with Dallas Machine & Locomotive Works, Dallas, released from overseas assignment after 33 months with Tenth Air Force in India.

Utah

J. S. McMahon takes J. M. Stapleton's place as superintendent of blast furnaces of Geneva Steel Co. (U. S. Steel subsidiary) at Geneva, the latter transferring to Carnegie-Illinois Steel Corp. (also U.S. Steel subsidiary) as assistant division superintendent of blast furnaces, South Works, Chicago. . . . Samuel J. Burris, Jr., consulting engineer for Kalunite, Inc., Salt Lake City, since 1942, becomes general superintendent; Dean Hurd, formerly general foreman, promoted to mill superintendent; and Frank S. Elfred, Jr., gets the job of general manager of company's Salt Lake alumina plant, replacing Robert E. Phelan. . . . Warren H. Yarroll resigns as metallurgist for U. S. Bureau of Mines in Nevada to join Geneva Steel Co., Geneva, in same capacity. . . .

Washington

E. A. Backman is new president of board of directors of the Anacortes Veneer Co., Anacortes. . . . Lloyd W. Schram heads committee for postwar development in Seattle area. He is acting executive secretary and research associate in the Bureau of Government Research, University of Washington. . . . Edward M. Benz, regional traffic manager for Northwest Airlines, Seattle, accepts position with Kelco Company in Los Angeles, Calif. . . . George French goes to United States Plywood Corp., New York City, as production engineer from old job as head of Western Electric's woodworking dept. in Seattle. . . . Fred C. Grether leaves vice-presidency of Everett Shipbuilding Co., Everett, to be general manager of Harris Mfg. Co., Stockton, Calif. . . . Robert J. Woody gives up assistant plant superintendent's job in Olin Corp's aluminum division, Ta-

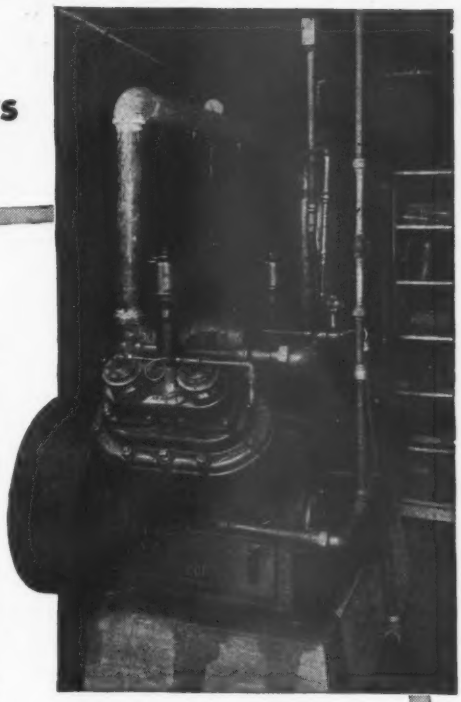
(Cont'd on Page 50)

CURTIS Air Compressor

"Vital to our wartime operations"

Says

Bronze Alloys Company



Having recently installed a new Curtis Air Compressor due to an increased demand for air, Mr. Albert Vigne, President of Bronze Alloys Co., St. Louis, writes:

"The air from this compressor is used throughout our foundry to operate molding machines, vibrators and air tools such as chipping hammers and hand grinders. As you know, *a dependable and uninterrupted source for compressed air is vital to our operations*—we can't do without it. To say that we are elated with the performance of our new Curtis Compressor is putting it mildly.

"We do not know the age of our other (Curtis) compressor . . . it is being held by us in reserve for emergency needs. The old compressor . . . was purchased in a used condition. It has served us faithfully, and were it not for the fact that our increased operations demanded more air, we certainly would be using it continuously because it is in excellent condition . . ."

Thus, another user of Curtis Model "C" Air Compressors expresses complete satisfaction with Curtis performance—a tribute to Curtis engineering, precision construction, and all-round rugged quality.

Curtis Air Compressors are Timken Bearing equipped and available in capacities up to 300 CFM. Send the coupon for complete information and free booklet, "How Air Is Being Used in Your Industry."

Sales Representatives:
ED. CROWLEY, 509 6th St., San Francisco, Cal.
O. J. THOMAS, 1429 S. W. 6th Ave., Portland, Ore.

CURTIS PNEUMATIC MACHINERY DIVISION OF CURTIS MFG. CO.
1954 Kienlen Avenue, St. Louis, Missouri

• Please send me your free booklet, "How Air Is Being Used in Your Industry," and further details concerning Curtis Model "C" Compressors.

Name.....
Firm.....
Address.....
City.....State.....

• **SEATTLE C.E.D. COMMITTEE. From left, seated: Charles Shaw, J. W. Wheeler, Frank Shaw, Robert MacFarlane, W. S. Leckenby. Standing: Joseph F. Parker, Adolph Engstrom, J. N. Davis, Dr. Nathaniel Engle, Dewitt Williams.**

Now—Air Operated Collet Chuck Relieves Second Operation Work on Screw Machines

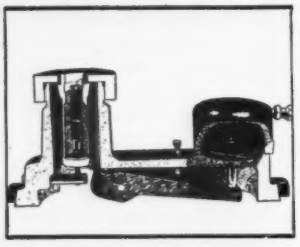
Work formerly requiring automatic or hand screw machines can now be done at much less cost through the combination of this new air chuck and any drill press. The Redmer Air Chuck is a collet air chuck using standard Brown & Sharpe type screw machine collets. The collet remains stationary, the opening and closing controlled by a sleeve action.

By using a collet as the chucking means, slight variations in the diameter of the work as frequently experienced with automatic and hand screw machine products can be permitted without sacrificing accuracy or concentricity. Thus accomplishing an important saving in time and cost.

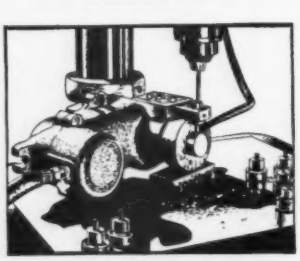
The air chuck is an ideal tool for holding parts for drilling, milling, slotting, burring, chamfering, boring, counterboring, tapping, threading, reaming and other work where the machine operation should be concentric with the chucking surface. It is adaptable to many different jobs merely by changing collet and stop. This results in saving of valuable production metals and materials. The chuck will take any type work whether round, hex, square or rectangular, and permits full efficiency of the operator, as it is operated by a foot operated valve thus leaving hands free to load and unload—reducing fatigue and cutting unproductive time to a minimum.

Wrigley's Spearmint Gum, too, is a help on the job. For chewing gum helps relieve dry throat, and helps ease fatigue brought on by the strain of work. And at the same time you are chewing and getting the benefits of swell tasting Wrigley's Spearmint, both hands are free and you need not take a "time out." The Army and Navy have recognized these benefits and are now shipping overseas *only,* all of the limited production of Wrigley's Spearmint. When Wrigley's Spearmint can again be produced in sufficient quantity for all, the valuable benefits of Wrigley's Spearmint Gum now being proven on the battlefield will apply to industry here at home.

You can get complete information from Redmer Air Devices Corp., 601 West Washington Blvd., Chicago 6, Ill.



An air operated collet holding fixture for precision chucking or machine tools



Chuck can be mounted on angle for angle milling job

Y-151

WESTERNERS *(Cont'd from Page 49)*

coma, to be metallurgical engineer in process development dept. of Permanente Metals Corp., San Jose, Calif. . . .

Associations Elect

Rocky Mountain Coal Mining Institute elected D. H. Pape, Monarch, Wyoming, president; Terry McGowan of Consumers, Utah, was elected vice president.

The tenth annual Western Safety Conference, lumber division, elected the following officers for the coming year: Otto Hartwig, Crown Zellerbach Company, Portland, chairman; L. F. Kramer, safety director White River Lumber Company, Enumclaw, Wash., vice chairman; Ed Crosby, Oregon Safety Association, secretary-treasurer.

Erick Ekholm, general superintendent of the Puget Sound Pulp & Timber Co., Bellingham, Washington, has been elected chairman of the Pacific section, Technical Association of the Pulp and Paper Industry; S. A. Salmonson, Everett, was elected chairman of the Pacific Coast division, National Pulp & Paper Mills Superintendents Association.

Utah Coal Operators Association elected Claude P. Heiner, vice president and general manager of the Utah Fuel Company, president; A. B. Foulger, general manager of the Lion Coal Corporation, named vice president, and B. P. Manley was retained as executive secretary for the twelfth consecutive time.

National-American Wholesale Lumber Association appoints Paul Stevens as western manager and announces transfer of Pacific Coast headquarters from Seattle to Portland; Joe R. Blunt becomes Portland district representative for association.

Douglas Fir Plywood Association elected the following officers at their annual meeting: Thomas B. Malarkey, Portland, vice president of the M. & M. Woodworking Co., elected president; Arnold Koutonene, president of Olympia Veneer Co., vice president; Herman E. Tenzler, president of Northwest Door Co., Tacoma, secretary; J. P. Simpson, general manager of Suffelen Lumber & Manufacturing Co., Tacoma, treasurer.

The Conservation Committee of California Oil Producers held annual election of its two standing subcommittees. The new administrative committee consists of Henry F. Power, General Petroleum Corporation, chairman; E. Robert Burns, MacDonald and Burns; D. W. Elliott, operator; Russell H. Green, Signal Oil and Gas Company; and R. P. Huggins, Western Gulf Oil Company. The new Allocation Committee consists of R. I. Brown, Standard Oil Company, chairman; Warren Craddock, Pacific Western Oil Corporation; John Hancock, the Hancock Oil Company of California; W. L. Jarvis, The Texas Company; Joseph Jensen, Tide Water Associated Oil Company; R. C. Patterson,

Belridge Oil Company; and John L. Stephens, Chanslor-Canfield Midway Oil Company.

Aeronautical Chamber of Commerce of America reorganizes, with Aircraft Manufacturers Council and Personal Aircraft Council emerging as major operating units, according to Harry Woodhead, chairman of the Western Regional Executive Committee of the Aircraft Manufacturers Council. Offices of the Aircraft Manufacturers Council have been established at 7046 Hollywood Boulevard, Los Angeles. The council consists of Boeing Aircraft Company, Consolidated Vultee Aircraft Corp., Douglas Aircraft Company, Lockheed Aircraft Corporation, North American Aviation, Inc., Northrop Aircraft, Inc., Ryan Aeronautical Company, The Aviation Corporation, Bell Aircraft Corp., Curtiss-Wright Corporation, Fairchild Engine & Airplane Corp., Bendix Aviation Corp., The Waco Aircraft Company, Sperry Gyroscope Co., Inc., and United Aircraft Corp.

Washington State Farm Chemurgic Committee re-elected Dr. H. K. Benson as chairman; L. E. Lowe, vice-chairman; D. B. Noble, secretary.

Salt Lake City Chamber of Commerce elects annual officers—Fred S. Mulock, vice-president—general manager United States Smelting, Refining & Mining Company, as president; Guy R. Toombes, managing director Hotel Utah, vice-president; Fred M. Michelsen, exec. vice president Utah Savings & Trust Company as treasurer.

Change to Repair Work

Pacific Bridge Co. shipyard at Alameda has changed over from new ship construction to repair work. It has been employing about 1500 workers. The plant is owned by the Navy, and the change-over also resulted in transferral of supervision from the Bureau of Yards and Docks to the Bureau of Ships. Pacific Bridge's main business for years has been construction contracting.

Seattle Job Needs

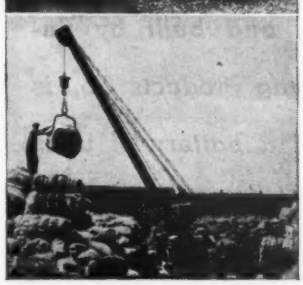
A need for about 314,000 jobs in the Seattle area after the war, 120,000 of which must be "new, practical jobs" is predicted by Dr. Nathanael Engle, director of business research, University of Washington. He said surveys show 79 per cent of the persons now working will want to continue after the war, and that per cent of the area labor force is female and 60 per cent of the women intend to continue working.

Hopes for Mediation

Dr. George Bernard Noble, chairman of the 12th Regional War Labor Board, hopes that mediation boards for the informal settlement of labor disputes can be set up in Seattle, such as have been established recently in Boston and Cleveland and are proving effective.

The Free-Roving Tractor-Footed

ROUSTABOUT CRANE



It does quickly all kinds of lifting, moving, loading, unloading, stacking and handling jobs, loads to 7½ tons, outdoors, indoors—hundreds of users say it prevents delays, breaks bottlenecks, saves money and manpower. It's where you want it when you want it, easy to run, low in expense. Modernly engineered and built for years of overwork—stout, ball-bearing, running-in-oil construction. For fast post-war action and low costs, write today and ask for the whole story.

THE HUGHES-KEENAN COMPANY
636 NEWMAN STREET • MANSFIELD, OHIO

ARMY NAVY E

ROUSTABOUT CRANE

Roustabout Cranes
By Hughes-Keenan

Pabco Employees Pull Down Accident Rate

THE Labor-Management Committee in the Emeryville, Calif., plant of the Paraffine Companies, Inc., which concentrates on one plant activity each month and has had notable success among other things in increasing production, has now taken on safety with the result that accident frequency has dropped 60 per cent.

Investigation revealed that the majority of accidents are due to personal carelessness and further research showed that employees generally believe safety is a management obligation which results in their lack of interest in safe practices. Pabco's committee felt that management should sponsor an employees' safety organization, just as it has sport, mutual aid and insurance organizations, and that labor should share its part of the obligation.

Each of the 10 Labor-Management sub-committees elected a "safety observer," who in turn was authorized to appoint as many assistants as necessary to cover each shift or gang. The 10 sub-committees also elected one member from their entire group to act as chief safety observer, as a labor representative to a plant safety council of three, the two others being the safety engineer and plant engineer.

The observer in each department was to work very closely with the foreman and department head, assisting in accident reports, keeping his safety assistants well informed on safety reports in his department, encouraging safe practices, warning careless workers, etc.

Each sub-committee held special meetings on safety. A member of the plant committee attended each meeting, to assist in the discussion and explain why it was necessary that every employee become safety-conscious as well as aware that safe practices are beneficial to every employee. To further encourage thinking about accident prevention a letter was distributed to each member stressing the possibility of decreasing accidents and saying:

NINETY PER CENT (90%) of the accidents in this plant are due to PERSONAL CAUSES . . . *not* mechanical! For instance: *YOU* didn't wipe up that grease spot where you saw it . . . *YOU* didn't remove that jagged piece of wood or pipe or metal to a safer spot . . . *YOU* didn't push back that wobbly hammer . . . *YOU* didn't pick up that bolt on the floor. . . . Trivial things! But—when your buddy breaks his arm or leg—or—gets a jagged cut, *that isn't trivial!* It's suffering of the type we *all* prefer to do without.

"Let's all get rid of this enemy. It is *YOU* that should be more careful. Be on the alert to *correct the cause.* It's *your* life or limb or eye. If it is something requiring help, report it at once! If it is something YOU *can* correct *on the spot* (like a bolt on the floor), pick up the bolt. The next fellow might not see it—might slip (into the hospital)."

Each observer distributed forms asking each employee for his ideas on safety precautions for his department, and a $25 war bond was given by the management for the best list submitted for each division. It was found, however, that although the employees were aware of what the committee was endeavoring to do, the suggestions were of a mechanical nature rather than to improve personal caution.

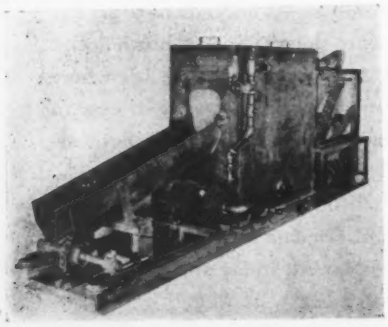
As this proved that very little thought about personal carelessness had entered the employees' minds, the safety council called a meeting of all safety observers, explained in detail the previous month's accident report and indicated the need to impress every employee that his or her conduct on the job was the key to a low or high accident rate. The observers were prompted to utilize their assistants in keeping everyone thinking about safety.

At a second meeting held near the end of the two months required to prepare and organize the campaign, each observer made

AMMUNITION IS VITAL

"OFFICIAL U.S NAVY PHOTOGRAPH"

Norris Stamping Co. is hitting high production records in turning out the vitally necessary shell cases needed in producing ammunition for all branches of our armed forces.



This shell washer, designed and built by Engineering Products Co., is one of a battery of units increasing production for Norris Stamping Co.

On Engineering Problems call Engineering Products

ENGINEERING PRODUCTS CO.

1600 SO. SAN PEDRO ST. • PRospect 7044 • LOS ANGELES 15, CALIF.

a report on his activities. All had a well-organized group of assistants. Many unsafe practices, previously unnoticed, were stopped. On numerous occasions employees throughout the plant had consulted with the observer on points of safety and pointed out hazardous methods of performing certain types of work.

The safety observers do not leave their jobs to perform their duties and a definite spirit of cooperation was developed between the observers, their assistants and the employees. The observer has become a symbol expressing in an organized manner the need for each individual employee to watch out for himself, a reminder that management does not suffer so severely from accidents as the careless worker.

In the two-months campaign, in May and June of this year, the accident frequency dropped to the lowest in the company's history. With approximately 1500 employees, there were only six lost time accidents in May and eight in June, a drop from a frequency average of 60 to 20.

Hare-Tortoise Hookup

Average speed of air cargo shipments from consignor to consignee between Seattle and Portland, is just under 40 miles an hour, because of slower ground handling, according to Raymond D. Kelly, superintendent of development, United Air Lines, Inc. Speaking before the West Coast transportation and maintenance meeting of the SAE in Portland, he said an air cargo plane traveled 168 miles in 58 minutes, or at the rate of 140 miles an hour, but ground handling at both ends was at the rate of less than ten miles an hour.

Aircraft Quality Standards

A standard quality manual, providing for the first time a uniform set of definitions covering the quality of aircraft parts and materials, has been prepared for all major West Coast air-frame companies and their outside production sources.

The manual does not prescribe inspection procedures which may vary between manufacturers, but endeavors to reduce each subject to the clearest and most concise language on which a large number of experienced inspectors can agree.

Magnesium Research

Permanente Metals Corporation have begun an intensive program of research at their magnesium plant, near San Jose, Calif. directed toward the development of light-weight truck bodies, automobile parts, home appliances and other peace time products. Completion of a contract for a special product for Chemical Warfare Service permitted reconversion of the plant's facilities to the making of magnesium metal.

ONE GREAT OIL for ALL Heavy Duty Engines

Use CADEL A. P. for these advantages:

1. Clean engines
2. Low engine wear
3. Free piston rings
4. Free valve stems
5. Cleaner filter elements
6. Clean oil passages
7. Long bearing life
8. Clean intake air ports (2 cycle diesel engines)
9. Easier starting at low temperatures
10. Economical oil consumption
11. One oil for all engines.

TIDE WATER ASSOCIATED OIL COMPANY

Listen to Associated Football Sportcasts

West Coast Automobile Possibilities

PARALLELING the article in the July issue of *Western Industry* by Thomas A. Watson, asserting that the flexible tooling technique developed in aircraft assembly plants has put them in a position to compete in automobile manufacturing, is a paper by W. B. Stout read before the Society of Automotive Engineers in Detroit a few weeks back.

Mr. Stout, formerly connected with Ford Motor Company and now head of the Stout Research Division of Consolidated-Vultee at San Diego, said new companies could not compete at the price field but could, however, in the "ingenuity field" with a new product for a new appeal. He said:

"In this approach the present motor car companies have given the newcomer every opportunity. Their engineering is frozen, their engines, transmissions, bodies, axles, frames, steering gears, all are standardized into types. Service and sales and distribution are definitely jelled. Interior arrangements and appearance and functionalism of the motor car are established, and in the motor car business itself there will be no change until it is forced by some outside competitor.

"However, since the war started, we have learned a tremendous number of things. The airplane business has brought new materials to make lighter structures, and yet much stronger, and has at the same time learned how to make them at low cost. Airplane materials that were expensive before the war should be inexpensive in the post-war era.

"Before the war, there was but one method of mass production in the automobile business—from steel dies, gages, templates, blueprints and engineering approaches. Each one of these items has been completely revolutionized, largely in the airplane business.

The airplane business has, therefore, learned how to make simple replaceable dies, has developed cheap production practices. While the automobile business must think in terms of 2,000,000 cars a year, the airplane business can produce a fraction of that number of units, but with no more die cost per car and, therefore, can start with new models every few weeks if necessary until they hit one that takes the public eye. Minor changes can be made quickly at little expense.

"Whereas it costs $500,000 for the fender dies of a modern car, this new car may be designed so that it needs no fender dies, or, in fact, any dies at all. There is no reason why the automobile business should do these things, but if the smaller companies throughout the U. S. are going into the automobile business or into small production with a new-type ingenuity-basis car, then these lessons of the airplane industry are most important."

We were all young, once!

Perhaps you are a young industry—a newcomer to the field. We were young once, too.

This year we have been established 59 years, so we feel somewhat paternal. During all these years, we have grown up along with other industries. We have had need of their products and they have purchased our chemicals. Just as we have relied upon others, many have had faith in us. They have depended upon us as their source for industrial chemicals. In all the years they have found we never let them down even in this critical war period.

We have enlarged all our plants—we have built new plants. We have stepped up production of industrial chemicals to a remarkable degree. It still is a problem of how to take care of all the demands placed upon us. We are constantly re-arranging deliveries, trying to take care of everybody—to keep all our customers—large or small, new or old—going with needed chemicals, so they can operate efficiently.

Yes, we were young once—we hope to stay young in our ideas and ambitions. While we are no longer an infant industry, we expect to keep on growing—in knowledge—in size and in usefulness. But there is one thing we hope never to outgrow—the ability to merit the faith of our customers.

Stauffer SINCE 1885

STAUFFER CHEMICAL CO.

Fairbanks, Morse Buy Pomona Pump

Pomona Pump Co., which was bought out in December 1942 by Joshua Hendy Iron Works has been sold by Hendy to Fairbanks, Morse & Co. in a $4,000,000 deal which makes F-M the world's largest manufacturers of turbine pumps. Pomona has plants in Pomona, Calif., and St. Louis, Mo., and does a business of from $7 million to $8 million annually. It has been operated as a division of Joshua Hendy.

The St. Louis plant was acquired when Pomona bought the Westco Pump Co. Joshua Hendy Iron Works retain the Torrance plant which had been used for pump manufacture but later was devoted to other war items. The Hendy organization at one time announced plans for a larger turbine pump than anything in the Pomona line, but on account of priorities were not able to go further.

Fairbanks, Morse announced that there would be no change in personnel in the Pomona organization.

Oil Refinery For Puget Sound Area

Establishment of a refinery at Renton, Washington, to be supplied with crude oil piped from Montana and Wyoming, is in prospect. C. O. Rison, executive vice-president of the North Pacific Pipeline Co., Inc., of Billings, Montana, has announced that his company plans to build a 10-inch pipeline for this purpose with a capacity of more than 40,000 barrels daily.

It is contemplated that the line would supply a new $5 million, 30,000-barrel refinery, which it is proposed be built by a Washington corporation as yet unidentified.

North Pacific would build a 480,000-barrel tank farm at Renton as terminus of the pipeline, which would start near Billings and run through Missoula, Mont., Spokane and by Snoqualmie Pass to Puget Sound with laterals to the oil fields in northern and central Montana and in Wyoming.

Postwar Situation Of Coast Negroes

After a six-weeks' survey of "non-white job patterns" on the Pacific Coast, Lieut. Lawrence A. Oxley, colored, senior technician of the War Manpower Commission's Bureau of Placement, has warned against an "ostrich policy" regarding the postwar employment situation.

He was accompanied on his recent survey of conditions in the Puget Sound, Portland-Vancouver, San Francisco Bay and Los Angeles metropolitan areas by Stanley V. White, minorities program representative of the 12th Regional WMC, and had a joint meeting with the six West Coast state directors for WMC.

Lieut. Oxley pointed out that the immigrant negroes were clustered in the same localities where general unemployment conditions would be most serious and said that the sharply segregated and restrictive housing patterns had aggravated the problem of assimilating the newcomers. He also stated that effort of returning American-born Japanese to reclaim the "Little Tokios" now crowded by a war-swollen negro population "that will not go back to where they came from" may create an appalling crisis that would extend far beyond housing to all forms of community adjustments.

"No great migration of our race to northern urban centers has ever gone into reverse," he told reporters, "and there is no reason to expect that this wartime movement of colored workers to the Coast will prove an exception."

He reminded the pre-war colored population of the Pacific Coast that they must work jointly with the immigrant negroes and whites toward civic unity.

New LIGHT-DENSITY TYPE PRECISION MOLDED 85% MAGNESIA

BRINGS NEW, GREATER EFFICIENCY IN HEAT INSULATION!

Up go fuel savings! Down go heat losses!—Because this new, light-density type of 85% Magnesia sets a remarkable new low in thermal conductivity over the full range of temperatures!

More and more engineers are discovering that the Plant Precision Molded process* has revolutionized the natural insulation superiorities of 85% Magnesia. Likewise, applicators are discovering that Plant Precision Molded 85% Magnesia is easier to handle . . . that it goes on faster, and brings the advantages of great "ductile strength," controlled uniformity and precision pipe fit. Write for complete data.

Army-Navy "E" Awarded to FACTORY No. 3 Emeryville, Calif.

*U. S. Patents Nos. 2,131,374, 2,209,752, 2,209,753, 2,209,754.

PLANT RUBBER & ASBESTOS WORKS

MAIN OFFICE: SAN FRANCISCO

Sales Offices in Los Angeles, Wilmington, and Oakland, Calif.; distributors in principal cities.

Factories in Emeryville, San Francisco, and Redwood City, Calif.

Manufacturers of Plant Insulating Materials and Mechanical Packings Since 1920

COMPLETE RANGE OF SIZES and thicknesses in blocks and pipe coverings (up to and including 18-inch pipe size in sectional form. Larger sizes in segmental form).

REGIONAL REVIEWS
COLUMBIA EMPIRE

SOONER or later somebody had to say it publicly. Without intending to do so, Edgar Kaiser, general manager of the three Portland-Vancouver Kaiser shipyards, has wiped away any illusions that might have existed about postwar employment in Portland.

Speaking at a meeting of local industrial and WPB leaders he stated that almost all of the 90,000 workers on his payroll would be without jobs when peace comes unless a quick and powerful organization is formed to rustle up other business for this area.

"I think the Portland area has done the grandest job of all in the war period," he said, "and I believe we owe it to this community to keep our plants going, so as to retain our employees after peace comes. But, unless fast action is taken to get new types of contracts, and unless strong pressure is brought to bear upon Congress for new appropriations, upon the Maritime Commission, the White House and others to this end, it's going to be bad."

. . . "I am going to Washington to confer on matters relating to our plants, but I can't do the job that must be done to save this area from an unemployment situation of the worst sort; that must be done by you who are here today and others who are interested, but I warn you it must be done and done quickly."

After his statements appeared in print Kaiser became fearful that they might have an adverse effect on holding up his personnel. He hastily issued a statement reiterating that he had contracts running well into 1945 and that these would not be affected by a sudden German collapse.

"I do not anticipate that any Kaiser employee will be out of a job after December," said Kaiser, "when we complete at Oregon Ship and Vancouver the AP-5 attack transport emergency program to which the Navy has given precedence over all other programs.

"Oregon Ship will resume construction of Victory cargo ships, which is not an emergency but a long range vessel, and the present contract will extend until July, 1945. Swan Island will continue to build tankers under a contract which will run until July, 1945. Vancouver will build troop transports under a contract dated to October, 1945." He added that the end of the war with Germany would not affect present contracts and that he confidently expected further contracts before present work is finished.

The whole affair had two aspects. Kaiser was revealed as a "man on the spot." It is well-known that workers are seizing every opportunity to jump from "temporary" war jobs to "permanent" civilian jobs. It is feared that bald statements about Portland's postwar labor situation might aggravate this movement at a critical point in the shipbuilding program.

At the same time Kaiser, a man with considerable social consciousness, is trying to jar Portland business leaders into some sort of action to take care of the postwar situation that will develop. He is horrified to visualize himself as the employer who must kick 90,000 workers out of their jobs. He now discovers that he can't carry on both fights at once.

Actually the affair may have a beneficial result. There is good reason to believe that nobody is being fooled anyway. In talking with workers one is constantly impressed with their frankly stated beliefs that they are riding a "gravy train" and that it "can't go on forever." The seven-day week with its double time pay on Sunday is doing more than anything else to keep workers on the job. In fact, fears of a postwar depression are doing as much if not more than anything else to encourage workers to make and save as much as they can now.

Nor can Kaiser expect much from his warnings to local business leaders. Port-

BELT LACING and FASTENERS for transmission and conveyor belts

"JUST A HAMMER TO APPLY IT"

ALLIGATOR
Trade Mark Reg. U. S. Pat. Office
STEEL BELT LACING

World famed in general service for strength and long life. A flexible steel-hinged joint, smooth on both sides. 12 sizes. Made in steel, "Monel Metal" and non-magnetic alloys. Long lengths supplied if needed. Bulletin A-60 gives complete details.

FLEXCO HD
BELT FASTENERS AND RIP PLATES

For conveyor and elevator belts of all thicknesses, makes a tight butt joint of great strength and durability. Compresses belt ends between toothed cupped plates. Templates and FLEXCO Clips speed application. 6 sizes. Made in steel, "Monel Metal", non-magnetic and abrasion resisting alloys.

By using Flexco HD Rip Plates, damaged conveyor belting can be returned to satisfactory service. The extra length gives a long grip on edges of rip or patch. Flexco Tools and Rip Plate Tool are used. For complete information ask for Bulletin F-100.

Sold by supply houses everywhere

"CONVEYOR BELTS EASILY FASTENED"

FLEXIBLE STEEL LACING CO.
4642 Lexington St.
Chicago, Ill.

The Best Phosphor Bronze Electrodes You Can Use

EDCO
•Yellow Shielded
ELECTRODES

18-Inch Center and 14-Inch End Grip

● You can't select a better phosphor bronze electrode than EDCO YELLOW SHIELDED . . . the rod that is used and endorsed by railroads, shipyards, refineries, aircraft and many others. EDCO YELLOW SHIELDED ELECTRODES may be specified for all types of electric bronze welding with complete confidence.

SOLE MANUFACTURER
ECCLES & DAVIES MACHINERY CO.
INCORPORATED
LOS ANGELES, CALIFORNIA
DISTRIBUTORS IN ALL PRINCIPAL CITIES

and will show an increase in employment after the war over prewar figures but will still be a long way from absorbing anything like 90,000 shipyard workers.

The important thing is that there is a chance now for the community to face the brutal truth before it has to experience it. The hue and cry can be raised in advance and perhaps something can be done to ease the shock.

Already steps in this direction are being taken. There is a definite movement on foot to try to ease off gradually in war production. Local war plant operators would like to drop from three shifts to one shift in gradual steps. They would like to arrive at a 40-hour week and run on it for a while rather than make wholesale layoffs. For this reason many local plants are busy trying to round up a few more war contracts that they can take their time on.

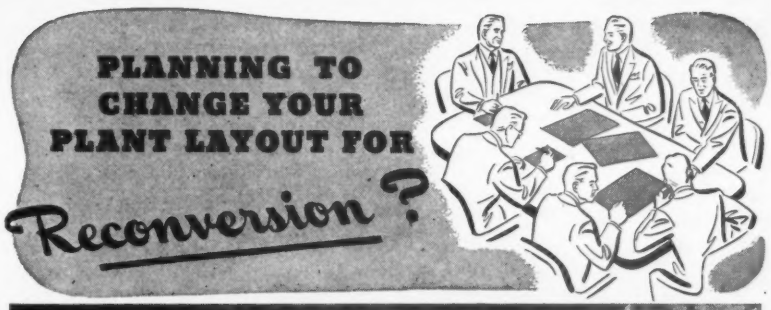
Development of Labor Statistics in California

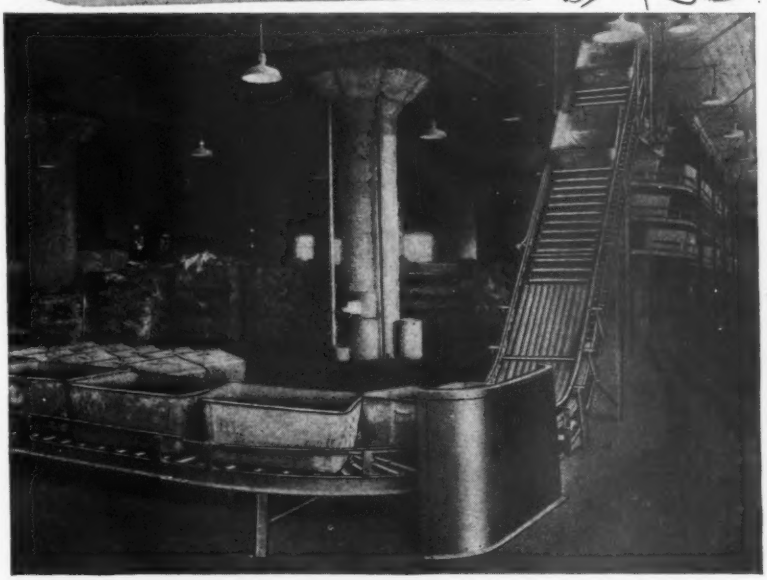
The twentieth anniversary of the inauguration of the California Labor Statistics Bulletin reveals that in these two decades the total labor force in California increased from a little over 1½ million to more than four million persons, including California residents in the armed forces, while the number of wage earners in manufacturing industries alone rose from around 225,000 to approximately one million. The current issue is based upon returns from 8,785 establishments employing 946,414 workers.

Sub-totals for Los Angeles County show a labor force increase from 500,000 in 1924 to approximately 1,700,000 in 1944, with manufacturing employment growing from less than 75,000 to 450,000. In the San Francisco Bay area the labor force grew from approximately 500,000 persons in 1924 to close to a million this year, while manufacturing payrolls grew from 75,000 to nearly 300,000.

By transmitting the statistics gathered for the state to the U. S. Bureau of Labor Statistics in Washington, the California Division of Labor Statistics has saved employers the trouble of making out duplicate reports to the national government.

Employment data are tabulated separately for different industries and published each month in the Bulletin. They cover employment, payrolls, hours and earnings, and a series of major improvements completed just when the United States entered the war proved of great value to the governmental war agencies. These included substitution of index numbers for month-to-month and year-to-year percentage changes; incorporation of a system of weighing, and adjustments to census levels and other benchmark data; and compilation of employment and payroll statistics in the form of absolute figures of number of wage earners and dollar amounts.





If You Need CONVEYORS That Can Give a "LIFT"... Ask STANDARD CONVEYOR!

BEFORE you decide on those changes — before you invest a cent of money — before a brick is laid or a nail driven — check your plan on the score of conveying and conveyors.

Conveyors can be built to do more than just carry in a horizontal plane. For example, push bar conveyors can carry and move packages and containers up a slope or incline at 30, 45, or 60 degree angles; vertical lift conveyors will carry commodities straight up and down to the height of several floors. These conveyors that lift and lower can be used individually or combined with a conveyor system to provide uninterrupted flow of commodities between floors.

Push bar conveyors and vertical lift conveyors are part of Standard Conveyor's wide variety of equipment — power and gravity conveyors in belt, roller, chain, and slat types; spiral chutes, tiering machines, portable pilers, pneumatic tube systems.

It's well to remember that Standard Conveyor has been headquarters for conveyors for more than 40 years; we are qualified by long experience to recommend and build efficient equipment for any given installation. Write for catalog WI-104, "Conveyors by Standard"—a profusely illustrated reference book that will prove very useful to you.

STANDARD CONVEYOR CO.
General Offices: North St. Paul 9, Minn.
Sales and Service in Principal Cities

TIERING AND LIFTING MACHINES

PORTABLE PILERS

SPIRAL CHUTES

PNEUMATIC TUBE SYSTEMS

Ryan Finds Jobs For Tucson Workers

When the Ryan School of Aeronautics was forced to close its flight base at Tucson, Arizona, because of the cancellation of its Army pilot training contract, Vice-President and General Manager Earl D. Prudden sent telegrams to 96 flight schools, airlines and aircraft factories, asking if they had openings for the various types of employees whom Ryan was terminating. In addition, representatives of the San Diego aircraft factory of the school's affiliate, the Ryan Aeronautical Company, and of the other Ryan school base at Hemet, California, flew to Tucson and took up residence there for several weeks of interviews with the school employees—seeking to keep as many of them as possible within the Ryan organization.

Prudden's telegrams, followed up by phone calls and special delivery letters, resulted in offers from all over the country which were accepted by a large percentage of the Ryan employees. The emissaries from the factory and the other Ryan school succeeded in placing another 25 per cent of them—and for all these employees who transferred to San Diego or Hemet, Ryan moved all their household belongings and other equipment to their new homes, free of charge.

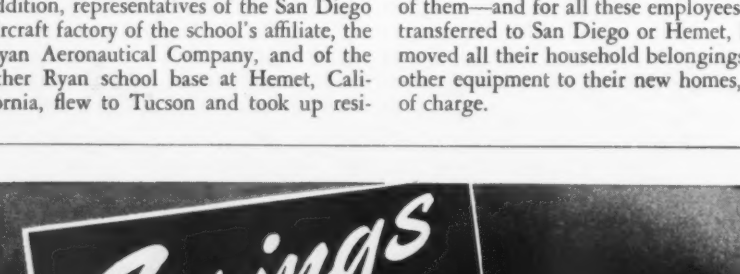
For workers who preferred to stay in Arizona, Ryan worked out a separate program for placement. In collaboration with the U. S. Employment Service, it arranged for employment representatives of all other leading Arizona enterprises—Davis-Monthan and Marana air fields, Consolidated-Vultee's Tucson plant, Goodyear's Phoenix factory, the Southern Pacific Railroad, the airlines, the Veterans' Hospital and even the WACS—to spend a day at Ryan Field interviewing employees and explaining job openings in each organization. Thus each employee had a choice of several good positions—and each employer had a chance at Ryan's pool of manpower.

When Ryan Field finally locked its gates for the last time, a total of 75 per cent of its employees stepped immediately into other jobs secured with the help of the Ryan organization, while 11 per cent joined the armed services. Of the 14 per cent who did not go to other jobs, nearly all had declined to take advantage of Ryan's placement program because of personal plans of their own.

Irresistible Force Ousts Immovable Body

No monopoly, private or governmental, is proof against competition from new ideas. In a discussion about electricity rates, Sidney Lawton, rate engineer for the Los Angeles Department of Water and Light, said that as a result of great developments in electric lighting units for American troops overseas, particularly in islands of the Pacific, owners of buildings and apartments may put in their own lighting plants for tenants and thus reduce municipal lighting business.

Springs OF ALL KINDS



EXTENSION SPRINGS ● All carefully controlled through each stage of manufacture from design to final inspection. The ultimate in the art of precision spring manufacture. California Spring Co.'s long experience is at your service in the solution of your war or post-war spring problems.

New Catalog available upon request

ANY SIZE, SHAPE OR WIRE FOR EVERY INDUSTRY

Spring Headquarters of the West since 1923

CALIFORNIA SPRING COMPANY, INC.

1746 S. LOS ANGELES STREET LOS ANGELES 15, CALIF.
TELEPHONE Richmond 6221

SHIPPING ROOM SUPPLIES

FACTORY EQUIPMENT

"MARKWELL" STAPLING DEVICES

FISHSTROM SALES CO.

SAN FRANCISCO
88 First Street GArfield 6094

OAKLAND
608 16th Street GLencourt 1174

LOS ANGELES
122 E. 7th Street VAndike 4446

Unified Planning for Bay Area

Preliminary steps toward united postwar planning by the San Francisco Bay area communities were taken at a meeting in Oakland late in August, sponsored by the California Reconstruction and Employment Commission.

Among new enterprises forecast for the central portion of California by G. L. Fox, manager of the industrial department, San Francisco Chamber of Commerce, are the following:

One of the nation's major printing establishments to employ 2,000 persons in San Francisco, with prospective purchase of a 10-acre site in Richmond by another printing company, to employ 200 people.

China Aircraft Corporation, which commenced construction of aircraft components in San Francisco on August 7 and has plans which may lead to the eventual employment of as many as 3,000 persons.

An eastern meat packer investigating plant locations at San Jose, San Francisco, Sebastopol and Stockton.

Studies recently made for a national manufacturer which will probably result in establishment of a postwar metal products plant at or in the vicinity of Modesto.

Preliminary study and additional analyses for a major paper products development on the Coast which will provide 650 jobs at some location, possibly Pittsburg, California.

Textile mill may be established in San Jose where another site has been acquired by an eastern chemical company for a new plant in a very promising field.

Another group, now engaged 100 per cent in war metal work, proposes to convert to chemicals.

Prefabricated Homes Every Half Hour

Prefabricated homes are being turned out at the rate of a four-room house in 30 minutes and a three-bedroom home in 40 minutes at the plant of the Prefabrication Engineering Co., Toledo, Oregon, under contract for the Army.

They are made in two or three sections, according to size, and the sections can be fitted together in 20 minutes. The house includes upholstered furniture, electric heating, electric cooking and hot water apparatus and electric refrigerator.

The plant is a 1,000-foot shed leased from the C. D. John Lumber Co. adjoining their huge spruce mill. About 300 employees are on the payroll and the daily output is 16 houses.

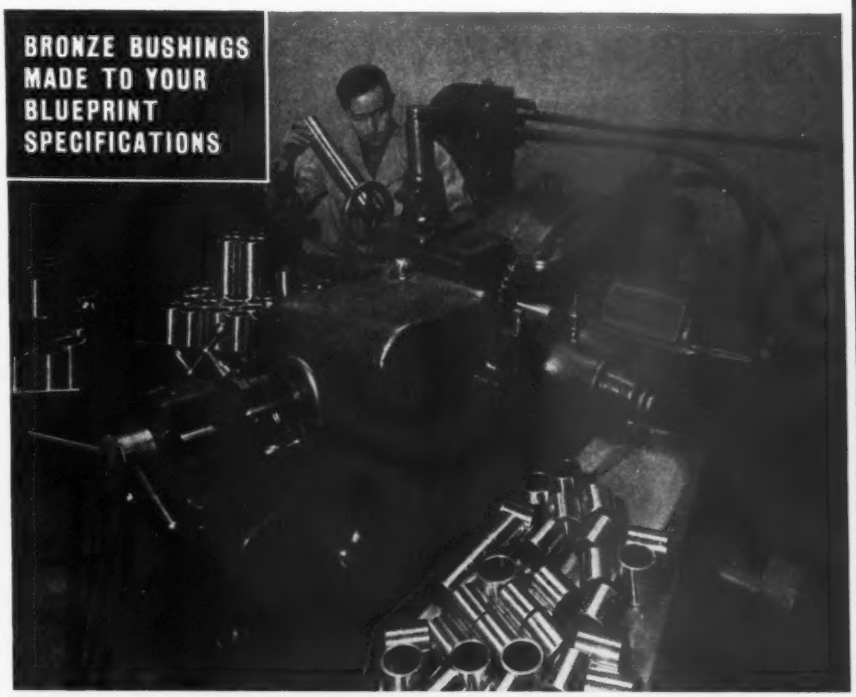
Manufacture starts in the cut-up department, where plywood sheets and lumber pass through trim saws, gang drills and trimmers. Cranes and motor trucks carry pieces to the sub-assembly and parts department. Here the floor and ceiling panels are nailed and glued. Partition panels, window and door assemblies are completed and wired for electricity. Panels then are moved to the final assembly floor, where trucks carry moving lines of house sections to the loading dock.

Walls, partitions and roof are put in place in the time usually required to hang a door. Electricians connect the panel wiring and plumbers install shower baths, sinks, wash basins, water pipes and drain pipes.

The house is now ready for the painters. After the painting come linoleum layers, followed by clean-up crews, and the house is ready for furniture.

They Huff and Puff

All is not art that is gray and dusky. Instead, it may be just smoke and fumes from the factories that have jumped the Los Angeles metropolitan area from fifth place in industrial production in the nation to second place. So the County Fumes and Smoke Commission has investigated and the grand jury has deliberated and the City Health Department has cited five firms for disseminating excessive smoke, gases or soot. Joseph Hickox, Mt. Wilson Observatory astronomer, says things have gotten so bad this year that he can hardly see Old Baldy, let alone Grayback, San Jacinto or Palomar.



ON-TIME DELIVERY DATES FOR VITAL WAR PARTS

Scores of West Coast manufacturers of vital war equipment regularly depend on KINGWELL'S fast, accurate, economical production of bronze bushings "made to blueprint specifications."

Eighty-nine years' experience and production "know-how" enable us to give you good "made-to-order" Bushings On Time at Low Cost.

Kingwell Bros., Ltd.

Established 1855 — San Francisco, California

REGIONAL REVIEWS

TEHACHEPI TO TIJUANA

More cars with out-of-state license plates are leaving Southern California than are arriving by a wide margin. In the first five months of 1944, 95,856 of such cars left and 74,245 arrived, while in the same period of 1943 there were 83,387 out-of-staters pulling out and 61,788 coming in.

OPA gas rationing statistics show more war worker requests for special allotments, with "going home" given as the reason in 30 per cent of the cases this year as compared with 9 per cent last year.

Many of the cars, of course, are carrying members of the armed forces and their families, although this group is down substantially from what it formerly numbered. At one time, the number was so large that Southern California's labor force would have been judged as going down when it was well known that it was increasing.

However, there is a trend outward. Added to this is a trend toward leaving the job on the part of many of those who were not previously in the labor market, but were drawn in during the war for various reasons.

Nineteen thousand discharged airplane workers have disappeared, as far as employment is concerned, because they are not in other jobs nor on unemployment rolls. Employment of women in manufacturing plants in the Los Angeles industrial area continues to decline, dropping to 136,800 women in July from 137,400 in June and 139,900 in July 1943.

The number of female industrial workers in aircraft plants in the area fell to 59,100 in July from 61,700 in June and 81,100 in July a year ago. Female employment in shipyards remained at 10,000 in June and July of this year compared with 2,600 in July 1943.

With war contracts holding up, Southern California has a very high unemployment rate. If there is a continued trend outward on the part of war workers, plus a trend toward leaving the job on the part of those who really don't need to work, the unemployment situation that so many feared would hit suddenly may be one of those things that we worry about, but doesn't arrive. Many non-essential industries can immediately absorb many workers, although the pay will admittedly be

PRECISE ATTENTION
to your most exacting requirements

SERVING THE ENTIRE WEST

★ ARMSTRONG Champagne and Still Wine Corks, Cork Stoppers—Straight & Taper Wood Top Corks, Metal & Molded Plastic Caps
★ DUPONT CEL-O-SEAL Caps, Opaque Bands and WIND-O-BAND Seals
★ Laboratory Stoppers
★ Bung Seals
★ "Protex" Excelsior
★ Bottle Wraps
★ Crimping & Corking Machinery

Insures Faultless Satisfaction

Exacting precision is the quality that insures perfection in all things. In closures it means not only perfection but utmost protection. No closure problem is so simple that rule of thumb measures can give proper satisfaction. Your product, whatever its nature, requires the skill and experience of the I. F. Schnier Company at this vital point. More than thirty years of varied experience in closure and packaging problems is our guarantee that your needs will be expertly fulfilled. Call on the I. F. Schnier office nearest your business the next time you want the proper closure for precise service.

MOST COMPLETE LINE OF CLOSURES IN THE WEST

SINCE 1909

I. F. SCHNIER Company

683 Bryant Street, San Francisco • 613 N. Hewitt Street, Los Angeles
SAN FRANCISCO • LOS ANGELES • FRESNO • PORTLAND • SEATTLE

USE Mailway Banking

FOR LARGE OR SMALL ACCOUNTS

Whether your account is large or small, business or personal, checking or savings, you will find our Mailway service helpful. We have special facilities to make banking by mail easy and prompt. Our careful attention to your needs will enable you to bank with us by mail, at greater convenience to you.

Open a Mailway account by mail

CROCKER FIRST NATIONAL BANK
OF SAN FRANCISCO
California's Oldest National Bank

Member Federal Deposit Insurance Corporation
ONE MONTGOMERY STREET

lower than the worker has been receiving.

Lockheed announces a $13,600,000 expansion program. Of this, approximately two-thirds will go for machinery and equipment. A million-dollar hangar will be built. Various types of buildings will be placed on a 77-acre airplane service station and garage. Also included in the program is a $250,000 cafeteria.

Douglas has signed orders for 93 airliners estimated to run $50,000,000.

Texas Company opens a new $21,000,000 100-octane refinery.

Fairbanks, Morse and Company buys the Pomona Pump Division of Joshua Hendy Iron Works for a reported $4,000,000, and will use the company's Pomona plant as a western manufacturing division. Pomona Pump, incidentally, was a western manufacturing firm established early in this century long before there was even a World War I.

Wrigley Company is planning to build a western plant.

A government-owned aluminum plant at Torrance has been closed, because the aluminum is not so badly needed as the 600 workers.

Horse racing will return November 1. Inasmuch as it was felt that the opening of tracks in this area would cause widespread absenteeism in addition to requiring 2,000 workers, its earlier return was opposed. Fact that permission to open has been granted is thought to have some significance as far as the end of the war with Germany is concerned. Just a case of it being hard to deny this particular area horse racing with things going so good that it could happen, but the story is on the optimistic side so it makes everyone feel good.

New war contracts totaling $397,294,208.55, approved for assignment to Southern California plants in August, represent the largest single month's awards in the history of the area production urgency committee. The figures confirm a recent survey indicating that new contracts have been outnumbering cutbacks by a three-to-one ratio.

Relatively little construction of new factories was approved in August, under the committee's policy of keeping existing plants busy instead of creating new ones to divide the work. Authorized construction totaled $15,256,499.16, a seven million dollar share going to the Navy for additions to its multi-million dollar facilities program. More than three million dollars consisted of additions to the high-octane gasoline program.

Recovering ethylene from by-product petroleum gases instead of from alcohol will reduce tremendously, it is understood, the cost of making styrene in the unit of the Southern California Synthetic Rubber Project operated by Dow Chemical Company.

The conversion will release 75 tank cars, now doing 130,000 freight-miles monthly, from alcohol service to other critical uses. It will also relieve the critical shortage of raw materials used in high-octane fuels. An addition to the plant, to cost approximately $1,796,000, is already under way.

Consolidated-Vultee have closed their feeder plants at Pasadena and Corona, established several months ago to relieve overcrowded housing in the San Diego area. Parts were being made there for Liberator bombers, production of which is being cut back to make way for manufacture of B-32 Dominator super-bombers.

Santa Barbara Gets First Reconversion

First Southern California plant to qualify under the new War Production Board's "spot authorization" plan for reconversion to civilian goods was given the green light by WPB, after investigation had shown that the move would not interfere with war production.

Authority to start the manufacture of aluminum pots, pans, and other household utensils in a branch plant which it said it would open in Santa Barbara to tap manpower reserves there, was assigned the Kinney Aluminum Company, Los Angeles.

More Comfortable
More Efficient
Hand
Protection

Not all synthetic gloves are oil resistant!

Light STANZOILS with non-slip finish that really won't slip

They're light weight, comfortable, unusually sensitive at the finger-tips —ideal for light assembly or inspection work. Made of neoprene, they resist damage by oils, acids, give better hand protection, last longer, cost less. Revolutionary non-slip finish assures firm easy grip of slippery pieces—faster, more accurate work. Please your workers and avoid costly liability claims with these Stanzoil RSW-13's. Write for the whole story—now.

STANZOIL PIONEER

Synthetic Rubber Division
THE PIONEER RUBBER COMPANY
267 Tiffin Rd., Willard, Ohio, U.S.A.
New York · Los Angeles

MADE WITH DU PONT NEOPRENE

Re-power YOUR TRUCKS with READY-POWER

READY-POWER
THE POWER THAT MAKES TRUCKS DO MORE WORK

THE GAS-ELECTRIC POWER PLANT FOR ELECTRIC TRUCK OPERATION

THE READY-POWER CO.
3847 GRAND RIVER AVENUE · DETROIT 8, MICHIGAN

KARL MOELLENDICK
7813 California Ave., Huntington Park, Cal.

GEORGE HUNDSDORFER
1424 11th Avenue, Seattle, Washington

EFFICIENCY KINKS FROM WESTERN PLANTS

Production short-cuts • Worker's suggestions • Prize-winning awards

BLOWING paint off planes to permit inspection of rivets and fuselage instead of removing it by hand completes the job in 16 hours instead of approximately a week at the San Bernardino (Calif.) Air Service Command. The conventional method of removing aircraft paint consists of spraying the fuselage with a paint remover, letting it dry for 30 minutes until the paint bubbles and blisters, and then rubbing it off by hand labor.

Under the new method, worked out by the men under Colonel Leo H. Dawson, chief of the maintenance division, the paint is blown off with a solution under 400 pounds pressure, at a temperature of 180 degrees F. Using the same pressure and temperature the job is finished with hot water to remove chemicals and prevent damage to the fuselage. Paint now is removed in 16 hours where before the removal required approximately a week.

San Bernardino Air Service Command uses for the first spray of paint remover C-B chemical compound, type A 20 under 40 to 45 pounds pressure from a Binks pot, 60-gallon capacity, type TU-60B, model Q. Spraying is started on the top surface of wings and fuselage.

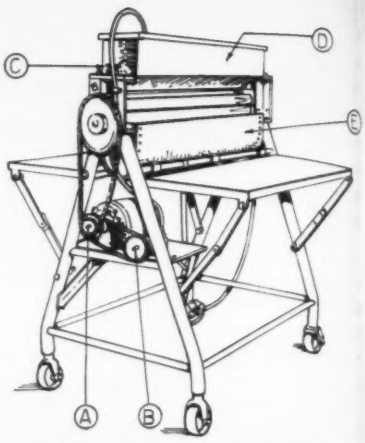
Final removal fluid is a mixture of 20 pounds C-B compound, type A 10-L, shot from a Malsbury model 325-GES-15, 220 V., 60 cycle, 68,000 BTO per hour, with a water pump capable of 900 gallons per hour.

The aircraft must be in the shade during the process and is protected by canvas stretched above it. Protection of exposed glass from the chemicals is done by coating with hot paraffin.

A mechanical oiler developed to spread lubricant on punch press blanks, 10 times as fast as the former hand method, is in use at Consolidated Vultee Aircraft Corporation's Vultee Field Division. It enables operators to oil blanks at the rate of 4,000 an hour.

This machine, a "wringer" type roll, powered by a 1/16 h.p. electric motor, is mounted on casters for mobility and stationed by the press to be used. It is equipped with a pump, geared to the motor, which returns the oil from the sump tank to the supply tank.

The punch press blanks are fed between two oil-coated rollers two inches in diameter, made of steel covered with Neoprene. Distance between the rolls is governed by the gauge of blanks and the amount of lubricant required to coat the material and



• Mechanical oiler for punch press blanks: (A) 1/6 h.p. motor; (B) gears for pump which returns oil from sump tank to supply tank; (C) screws for adjusting distance between rollers; (D) tank above top roller for drip feeding oil; (E) bottom tank containing hardwood "floating" cylinder for feeding oil to bottom roller.

is determined by adjustable screws at each end of the roll. An overhead tank drip-feeds the top roll while a second tank is equipped with a five-inch diameter hardwood "floating" cylinder to feed oil to the bottom roll.

A curvograph burning machine improvement design by Russell R. Ripley,

This label on lighting equipment
means lower maintenance expense
SMOOT-HOLMAN COMPANY
SMOOT-HOLMAN
INGLEWOOD, CALIFORNIA
MADE IN U.S.A.
The Smoot-Holman hall-mark is more than an identifying feature. It is your assurance that the lighting equipment so marked is engineered and manufactured to give longer life at a minimum of maintenance expense. Smoot-Holman users tell us that this margin of quality is apparent in the trouble-free performance that is characteristic of this equipment.
SMOOT-HOLMAN
COMPANY
INGLEWOOD, CALIFORNIA
Offices in Principal Western Cities • Branch and Warehouse in San Francisco

plate shop leadman at the Oregon Shipbuilding Corp. yard at Vancouver, won him a $100 war bond in August from the Management-Labor Committee at the yard.

Ripley's device is an adjustable template track guide, combined with a traveling carriage supporting two movable bars and burners. It makes possible more accurate cutting along curved lines on shell plate.

With the Ripley invention four burners are able to do the work formerly requiring six burners on two machines. It effects a saving of 1200 man-hours per month.

Gary G. Chappell, electrician, won third honors with a stud welder control box, an electric circuit designed to control the flow of current through the stud welding guns used by electricians. Its main asset is its portability, which has resulted in an estimated saving of 850 man-hours per month.

Walter L. Bland, electrical leadman, devised an electrical riveting machine improvement. It is described as a chuck, or tool holder, with two vertical spinner wheels used in a drill press to spread rivet heads on the ears of Jackson stingers' low tong.

It eliminates damage to the stinger ears formerly caused by the expansion of the rivet shank in the ears. Monthly man-hour saving is estimated at 500.

Builds Three P-38s

Man-hours sufficient to build and assemble three P-38s a year have been saved to Lockheed by Jack Peslin, experimental mechanic and champion idea man. He has submitted 322 proposals for improvement, of which 110 have been accepted, with an aggregate payoff to Peslin of $2,423.50.

Lumber Future

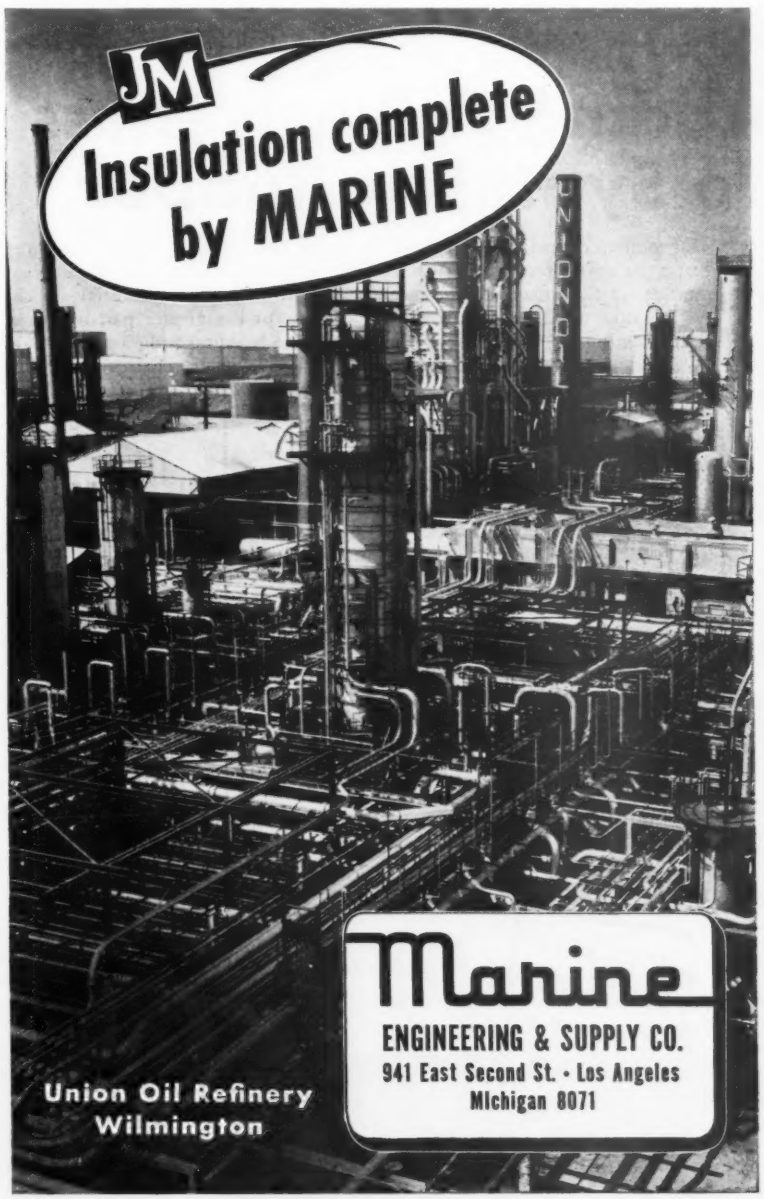
Prediction that the logging and lumber industry will continue operations at top pressure for several years after the war is made by the Oregon Post-War Readjustment & Development Commission in a report to Governor Earl Snell. It reported that more than 10,000 additional men will be needed in forests and mills of the state.

Marinship Leads

Workers at Marinship Yard, at Sausalito, Calif., won ten out of twenty individual awards made by the War Production Drive to workers in 5,000 industrial plants from coast to coast. This raises to 152 the number of national citations received by Marinship workers for outstanding time saving production ideas which have merited national recognition.

Potato Starch Useful

Potato starch remaining from the manufacture of potato chips has been found by several Pacific Coast plants to be in demand by food products manufacturers who have found uses for it similar to corn starch, such as for puddings.



Johnston
STAINLESS
STEEL
WELDING
RODS
ARIZONA
WELDING EQUIPMENT CO.
230 S. CENTRAL AVENUE
PHOENIX, ARIZONA
A.P. Johnston
1845 EAST 57th ST., LOS ANGELES, CALIF.
TELEPHONE KIMBALL 2508

• Machinists of the United States Rubber Company plant of Los Angeles put the finishing touches on breaker strip heating conveyor, readying it to take its place in the production line. Unit designed by the plant's engineering department and constructed in the machine shop.

Adding Adhesiveness To Synthetic Rubber

THE problems of making a good synthetic tire in quantities sufficient to meet at least the needs of the military and essential civilian requirements have arisen mainly from the differences in milling characteristics between the plantation rubber for which the milling and tire building equipment was designed and the GR-S synthetic material which was chosen for the greater part of the industry's tire building program.

F. B. Davis, Jr., chairman of the board of directors of the United States Rubber Company, graphically illustrated this problem with an apt simile while on a recent Pacific Coast tour of inspection. He likened the tree rubber to chewing gum. "When you masticate two sticks of gum very soon, they are one. That is the way natural rubber acts when milled. But synthetic rubber doesn't act that way. You can chew two separate pieces all you like and they will stay separate. They just don't like each other."

The adhesive quality absent in the test tube rubber had to be added through the application of cements so that the layers of fabric and rubber would adhere to each other until the tire could be vulcanized. It was apparent at the Los Angeles plant of the United States Rubber Company that the first attempts to apply the rubber cement by hand was too slow. This method became an increasingly serious bottleneck as new machinery was installed to implement an expansion program. It was obvious that the slow hand operation would nullify the productive capacity of the new machinery.

INVESTIGATE...

PLANNING

ENGINEERING

MANUFACTURING and INSTALLING

SERVICE and MAINTENANCE

The C-O-M-P-L-E-T-E Service which Spencer & Morris can offer You.

A. Trained materials handling engineers who can help you work out your particular problem, whether it be floor handling, crane or monorail, or a specialized project.

B. Design Engineers to produce a selected system, see that it is made right to do the job expected of it

C. The plant and the facilities, with the best of personnel and supervision

D. To keep the installation going at TOP efficiency

SPENCER & MORRIS

Engineers · Designers · Builders of Material Handling Systems

More Power to You!

Greater earnings for you too—because the new Cleveland Speedaire Worm Gear Unit gives you *More Horsepower for Your Dollar!*

Speedaire offers as much as twice the capacity of standard worm units of equal frame size, when operated at usual motor speeds.

Heat generated during operation is literally *scoured off* the deeply-finned outer surfaces of the oil reservoir by a high-velocity air stream.

The new Speedaire Catalog is ready. We'll send it gladly. The Cleveland Worm & Gear Company, 3269 East 80th Street, Cleveland 4, Ohio.

San Francisco Los Angeles Portland Seattle

Affiliate: The Farval Corporation, Centralized Systems of Lubrication

Cleveland SPEEDAIRE FAN COOLED Worm Gear Reduction Units

Engineering department of this factory came up with the answer in the form of a conveyor belt heating and drying unit powered with a five horsepower electric motor. The unit was so designed that the breaker strips automatically dipped into the cement solution, then fed into the conveyor belt. Moving along the conveyor belt the breaker strip is dried and cured through the means of an over-head suction blower which sucks the air and cement fumes up through the wire mesh belt. A steam coil applies the necessary heat.

With this machine, the operation takes one-fifth the time required in the hand operation.

Another bottleneck on the production line was the old messy, time-consuming method of cooling rubber slabs which come from the Banbury and 84-in. mixing mills; operations which start the rubber on its way to the tire and fuel cell builders. The old way necessitated the use of powdered soapstone to prevent the slabs from sticking together when stored.

From the mixer the rubber had to be placed on a rack which an operator hauled to a spray cabinet some distance away. It was a slow process and obstructed the production capacity of the other machinery. Out of this necessity came a new cooling system also designed by the engineering department of the Los Angeles plant.

It is a rack with channeled guides at the top with a driven sprocket chain on which are welded lugs. The bars on which the slabs hang are fitted into the channel and driven slowly through the unit. As the slab moves forward drafts of air are forced on the hot slabs by an overhead blower, while at the same time a continuous spray of cold water covers the surface of the rubber. As the rubber cools and dries, a soapstone solution, into which the slab is first dipped, forms a film which prevents the slabs from sticking together when they are stored.

From hours of time this ingenious machine has cut the process to 15 minutes and has eliminated the need of one operator—advantages which have done much to synchronize the flow of production.

Basic Magnesium Shutdown Jan. 1

Basic Magnesium, Inc., which at the height of its operations earlier in the year was the largest electro-chemical plant in the world, will close down completely by January 1, 1945. Formerly operating ten units, it had been cut down to four recently, and from October 1 to the end of the year will taper off gradually. Its quota from September 1 was between 9 and 12 million pounds.

This cessation resulted from a 40 per cent cutback in primary magnesium ingot production ordered by WPB. Production at the DPC plant at Velasco, Texas, operated by Dow Chemical Co., was cut 50 per cent, and the International Minerals plant at Austin, Texas, is to be closed by the first of the year also, it is understood.

Efforts are being made to move as many of the employees as possible to the Naval Ordnance Test Station at Inyokern, California. The production of liquid chlorine will possibly continue at Basic for the duration of the war. This function alone will require the retention of a limited staff as well as employees for services and supply, water and power, guard force and fire protection and necessary maintenance and clerical workers.

An aluminum cutback at the same time resulted in a shutdown of the DPC plant at Torrance, Calif., operated by Alcoa, and a reduction of about two-thirds at the DPC Trentwood plant at Spokane and the DPC Troutdale plant near Portland. Alcoa's own plant at Vancouver also reduced output in conformity with Alcoa's contract with DPC which calls for dividing reduction schedules between government-owned and Alcoa plants at the present level of production.

INDUSTRIAL RUBBER PRODUCTS
Hose — Belting — Packings
Rubber Clothing — Boots — Specialties

GOODALL RUBBER COMPANY
(CALIFORNIA)
LOS ANGELES 510-514 E. 4th St. Michigan 2207 · SAN FRANCISCO 878-A Howard St. Sutter 1944 · SALT LAKE CITY 251 W. South Temple St. Phone 3-8021 · SEATTLE 524 First Ave. So. Elliott 7342
Mills—Trenton, N. J., established 1870

ROPE TRICK
invasion version

Send for booklet "Care of Rope" and other rope conservation material.

This is a demonstration of how Allied forces are crossing streams and other obstacles as they put the finishing touches on Hitler. Because rope is serving jobs like this on every front, it is vitally necessary to conserve it. When it must be replaced, the names TUBBS and PORTLAND (in the Northwest) assure maximum dependability.

TUBBS CORDAGE COMPANY
SAN FRANCISCO
PORTLAND CORDAGE COMPANY
PORTLAND · SEATTLE

Business Books

Safety in Electric and Gas Welding and Cutting Operations. Its preparation was initiated by the International Acetylene Association, the American Welding Society, the National Electrical Manufacturers Association, and the Division of Labor Standards of the U. S. Department of Labor. The booklet is designed to serve as a guide for the protection of the individual operator from injury or illness, and for the protection of property from fire or other damage arising out of improper methods in the installation, operation, or maintenance of welding and cutting equipment. Price 40 cents. *American Standards Association, 29 West 39th Street, New York 18, N.Y.*

The Oxy-Acetylene Handbook. A complete and authoritative textbook for both student and experienced welding operators. This new, durably bound, 600-page manual is valuable as a guide for self-instruction and also as a standard classroom textbook in vocational and trade schools, technical high schools, and engineering colleges. Covers entire range of the oxy-acetylene process, giving easy-to-follow instructions for handling all the common commercial metals; can serve as a reference book for plant management people, engineers, designers, and superintendents. Price $1.50. *The Linde Air Products Company, 30 East 42nd Street, New York City.*

Wage Incentives by J. K. Louden. A brief, compact presentation, for management and labor, including the relation of wage incentives to other phases and functions of management, proper administration and maintenance of incentive plans, control of quality and waste, union participation, etc. Price $2.50. *John Wiley & Sons, Inc., 440 Fourth Avenue, New York.*

The Liquidation of War Production by A. D. H. Kaplan. A summary of the principal conclusions of a C.E.D. research study by Dr. Kaplan, Dean of School of Business Administration, University of Denver. It is the result of more than a year of intensive study and expresses an optimistic attitude but nevertheless warns "that it will be idle to pretend that the liquidation of war production is not one of the most complicated tasks which the nation has had to face." Price $1.50. *Committee for Economic Development, 285 Madison Ave., New York 17, N.Y.*

Helicopter Deal

Kaiser Cargo, Inc., has contracted with Stanley Hiller, Jr., for the helicopter developed by the 19-year old Berkeley inventor.

To Build Buses

Consolidated Vultee has received an order for new type buses from Greyhound Corp. for delivery when war priorities make materials available. They will be powered by air-cooled engines, the first adaptation to such use, and will embrace certain details of airplane construction developed during the war.

The drivers' compartment which resembles the nose of a bomber will be almost surrounded by transparent plastics to give a wider view. Riding qualities will be improved by a new method of shock absorption derived from complete departure from present methods of weight distribution and suspension.

An Oversold Future

Mills in the Western Pine Association can produce at the most 4.5 to 5 billion feet a year in the postwar period, whereas they would have to produce 7 billion to get the same share of the total construction dollar that they enjoyed before the war, according to W. E. Griffee, statistician for the association.

248 More Fields

Civil Aeronautics Administration's master airport plan calls for 248 new landing fields on the Pacific Coast, all but 19 of them smaller airports for private flying or feeder line operations. This would bring the total of West Coast fields to 625.

TEAMWORK with

WESTERN INDUSTRIES

We are here to serve every firm engaged in the production fight for freedom and offer every cooperative assistance where gears are involved. Regular personal calls are not possible, but when gears are up for consideration we offer you able and experienced counsel in working out your problems.

GEAR FACTS—80 pages of essential engineering data and charts on gears—sent free on request.

JOHNSON GEAR & MANUFACTURING CO., LTD.

MAIN OFFICE AND WORKS: BERKELEY, CALIFORNIA

Packhorse

FOR PRODUCTION AND MAINTENANCE

Production goods are the life blood of our America in Peace and War. Materials must move into and through production, and finished goods pass on into the arteries of transportation. Here the caster is the packhorse. Like its predecessors it takes the brunt of the burden and works steadily under heavy loads.

Rapids-Standard casters are "Steel-Forged" for strength with top plate and king pin made in one solid piece. The double row of swivel ball raceways are exclusive Rapid-Flame Hardened reducing friction at the point of greatest wear. This means longer life and easier swiveling.

For trouble-free operation and effortless moving specify rugged Rapids-Standard casters for your production and maintenance packhorses. They roll heavy loads faster and easier . . . longer. Write for Free Manual 65-1C.

WEST COAST DISTRIBUTORS: E. C. Buehrer Co., 562 Bryant St., San Francisco, Calif. M. E. Canfield Co., 420 E. 3rd St., Los Angeles, Calif. Murry Jacobs Co., 528 1st Ave., So., Seattle, Wash. Oregon Handling Equipment Co., 907 Terminal Sales Bldg., Portland, Ore. Murray Brokerage Co., Wazee Market, Denver, Colo.

The RAPIDS-STANDARD CO., INC.

5352 Bond Avenue, N.W. Grand Rapids, 2, Michigan

"Keep 'em rolling!"

—Let Stuart check your welding equipment

It's not only good business, —it's our *duty* to keep every tool working. You may get 10-20 per cent more output if your equipment is in tip-top shape. So, let us make a thorough examination; give an impartial report based on hundreds of shops like yours. No cost, no obligation; just part of Stuart service that has helped make us the largest California-owned manufacturer of Oxygen and other gases. We've *had* to be good to get that way!

We're also one of the largest distributors of welding equipment and supplies with stocks in more than fifty towns. Wherever your job may be, you'll find us ready. Just telephone!

Stuart Oxygen Co.

San Francisco, Oakland, Los Angeles

In the most vital war work on the Pacific Coast... where uninterrupted production is a "must"... every foot of Acetylene that is used by six of the largest shipyards is generated from

PACIFIC CARBIDE

Made by Pacific Carbide & Alloys Co., Portland, Oregon.

Distributed and unconditionally guaranteed by Stuart Oxygen Co.

Pennsylvania Iron Becomes Westland Steel

Pennsylvania Iron and Steel Co., Los Angeles, have sold their fabricating steel plant and warehouse steel department and changed the company name to Westland Drawn Steel Co.

Under the new arrangement, Westland Drawn Steel Co. will concentrate exclusively on the production of cold drawn bars, carrying on the activities of the Cold Drawn Bar Division, established by Pennsylvania Iron and Steel Co. early in 1942. The fabricating plant and warehouse will be operated by Roy A. Badt, and John Landis under the name of Pennsylvania Steel Co., which is now merged with Junior Steel Co.

Though both companies are separately owned and operated and have no financial ties, they will share offices for the duration at 2451 East 23rd St., Los Angeles.

Westland Drawn Steel Co. will continue to be owned and operated by Samuel Tuch and his sons, Harry, Albert and Irving. There will be no change in personnel. H. J. Bauman, eastern steel executive, who joined the organization in January 1942, will continue as manager of the plant.

Production Awards

Among recent awards for outstanding efficiency in war production are the following:

R. M. Wade & Co., and Manufacturing Division: Multnomah Iron Works, Portland. Maritime "M."

Litton Engineering Laboratories, Redwood City, Calif., Army-Navy "E."

Santa Clara Frosted Foods Co., Santa Clara, Calif., "A" award from War Food Administration.

Marinship Corporation, Sausalito, Calif., third gold star on Maritime "E" pennant.

Universal Microphone Co., Hollywood, Army-Navy "E."

Bellingham Iron Works, Bellingham, Wash., fourth star on Navy "E" pennant.

Fisher Flouring Mills Co., Seattle, War Food Administration "A."

Plomb Tool Company, Los Angeles, second white star on "E" flag for third consecutive Army-Navy production award.

Western Gear Works, Seattle, third star on Army-Navy "E" flag.

Bozeman Canning Co., Waitsburg, Wash., War Food Administration "A."

Nevada Packing Company. Reno, Nev., War Food Administration "A."

Cling to the West

A regional labor force survey of five San Francisco Bay area shipyards having a total of 56,860 employees, reveal 58 per cent immigrants. More than two-thirds of the immigrants desire to remain in California; a little over one-half would like to remain in a similar type of activity; one-fifth plan to leave California when their war job is ended; one-tenth want to go back to farming as owners or workers; about one out of twenty is planning to go into business for himself; and one out of twelve is indefinite as to his future plans.

Today..WAR WEAPONS

Tomorrow...

Payne

ZONE-CONDITIONING

There's only one important job now . . . backing up the armed forces. We've been concentrating on it for more than two years. But after victory, our dealers will have a new "sales weapon": PAYNE Zone-Conditioning, postwar successor to old-fashioned central heating. ★ Meanwhile, let's all buy more, and more, War Bonds.

REQUEST NEW ZONE-CONDITIONING FOLDER

. . . just published for the information of families who plan to build or remodel. Write for sample copy.

COPYRIGHT 1944—PAYNE FURNACE & SUPPLY CO., INC.

PAYNEHEAT

30 YEARS OF LEADERSHIP

GAS FUEL HAS EVERYTHING

Payne FURNACE & SUPPLY CO., INC.

BEVERLY HILLS, CALIFORNIA

THE PICTURE

Extreme manpower shortages continue to affect production in ships, copper, and possibly aircraft, and are causing piling up of freight cars in the yards, although the freight statistics have not yet been affected—in fact, July and August movement show a big increase. Lumber seems to be over the peak of military demand. The latest cutbacks in aluminum and magnesium will not appear in the electric energy for another month or two, and meanwhile latest electric figures show a slight rise. The latest war production contract figures do not seem to reflect anything significant.

Lumber—*War Peak Passed*

August production lifted the West Coast lumber industry back to the level of June, and over-all military requirements appear to have passed the peak and dropped slightly, although still having first call on the major part of production. The stiffest problem is log supply for the coming winter as the critical shortage of heavy duty tires is taking trucks off the log hauls of Washington and Oregon. The majority of log producers throughout the region are affected.

The critical nature of lumber is likely to hold back its release from military requirements longer than may be the case with most war materials, but the industry still anticipates that a greater margin of free markets will become possible.

Cumulative figures for 35 weeks in 1944 and previous years in thousands of board feet reported by the West Coast Lumbermen's Association are as follows:

	1942	1943	1944
Production	5,948,747	5,256,825	5,428,510
Orders	7,197,261	5,642,991	5,814,883
Shipments	6,541,770	5,401,319	5,453,598

Western Pine Association figures covering Idaho White pine, Ponderosa pine, Sugar pine and associated species for the current year to September 2 are as follows:

	1943	1944
Orders	2,649,033	2,596,547
Shipments	2,636,588	2,518,430
Production	2,378,064	2,356,245

Iron—*Utah Steps Up*

A substantial gain in shipments in July from Utah iron mines offset the decrease from California and Wyoming, resulting in a slight increase for the three states together. Bureau of Mines figures in gross tons are:

	Utah	Wyoming	Calif.	Total
March	133,901	86,291	54,104	274,206
April	123,417	63,081	49,078	235,576
May	134,733	70,535	54,477	259,745
June	93,699	64,652	63,055	226,406
July	126,514	47,962	60,908	235,384

Copper—*Moderate Decline*

Copper production (in terms of recoverable metal) from domestic mines (including Alaska) was 80,412 short tons in July, a decrease of 2,811 tons (3 per cent) from that in June, according to preliminary estimates of the Bureau of Mines. A decrease of 3,869 tons from Arizona accounted for virtually all of the decline. A continued shortage of labor at the larger copper mines in the state plus a lay-off of from 2 to 3 days to observe the holiday July 4, accounted for the greater part of the lower Arizona output. The production from Montana also showed a decrease (469 tons) from June, due principally to a labor shortage which has necessitated the treating of a greater quantity of old mine dumps containing material of a lower grade. Advances over June were noted in the output from Utah and New Mexico.

Production figures from the Western states, in short tons, are as follows:

	Ariz.	Mont.	Utah	Tot. Western, including other states
Jan.-March	102,224	35,421	79,046	255,624
April	33,967	10,683	24,545	82,822
May	33,832	10,668	24,979	82,108
June	31,369	8,969	23,421	77,964
July (prelim.)	27,500	8,500	24,400	75,006

Freight—*Forecast for Fall*

Railroads in the Pacific Coast Transportation Advisory Board district expect only a 3.6 per cent increase in prospective car requirements for the fourth quarter of 1944 over the same period a year ago. This amounts to 18,040 cars. Principal prospective increases are 14.5 per cent for agricultural implements and vehicles, 18 per cent for citrus fruits, 10 per cent for fertilizer, 10.4 per cent for machinery and boilers, 24.4 per cent for rice, 24.4 per cent for sugar and sugar beets, and 11.8 per cent for grain. For ore there is expected a 14.4 per cent decrease and for iron and steel 10 per cent.

Total traffic figures for the railroads in the Far West are as follows:

	Loadings	*Received from eastern connections*	*Total*
March	421,188	320,763	741,951
April	489,777	336,101	825,878
May	505,610	333,480	839,090
June	559,037	333,709	892,746
July	746,085	418,866	1,164,951
August	709,486	404,070	1,113,556

War Production Contracts—*June Showing Is Fair*

In Thousands of Dollars—Source: War Production Board Statistical Division

NOTE: *The monthly award figures shown below represent only an approximation of the actual contracts, because cut-backs and cancellations are usually on previous awards, although reported in the current month. Also there is considerable lag in the reporting of individual contracts. However, WESTERN INDUSTRY is reporting the monthly awards by the successive subtraction method as an approximation.*

	MONTANA	IDAHO		WYOMING	COLORADO			N. MEX.	ARIZONA			UTAH		NEVADA	
	All Other	Ships	All Other	All Other	Aircraft	Ships	All Other	All Other	Aircraft	Ships	All Other	Aircraft	All Other	Ships	All Other
January	....	...	370	1,280	...	...	125,636	824	....	112	66	...	778	...	85
February	1,384	...	52	7,858	...	—241	—374	...	....	208	175	...	195	...	5,236
March	34	...	50	602	98	119	3,069	573	9,396	...	203	...	1,076	...	1,336
April	....	29	...	13,000	. .	520	—1,506	—653	. ..	...	660	...	169	...	3,621
May	....	53	121	—12,638	250	...	6,022	161	300	...	...	53	818	...	1,274
June	....	...	.....	12,833	...	800	230	3,946	10,300	...	151	...	2,084	...	2,377
Total from June 1940	15,807	721	8,315	43,413	1,714	3,506	398,985	8,707	58,495	387	24,079	900	171,311	156	26,478

	WASHINGTON			OREGON			CALIFORNIA			TOTAL		
	Aircraft	Ships	All Other	Aircraft	Ships	All Other	Aircraft	Ships	All Other	Aircraft	Ships	All Other
January	....	1,549	23,782	...	7,803	12,600	2,390	280,712	46,641	2,390	290,176	211,462
February	....	84,257	—74,558	...	6,662	—760	221,910	142,683	26,174	221,910	233,569	—34,568
March	—79	—226,602	—16,553	—169	3,136	—5,133	397,502	—42,828	79,517	406,748	—266,175	64,824
April	490,785	40,671	9,235	...	6,511	14,297	698,106	13,609	75,277	1,188,891	61,340	117,282
May	...	12,082	—6,785	...	39,430	10,088	—525,545	11,933	19,835	—524,942	63,948	—1,230
June	...	153,182	22,865	...	102,046	2,288	280,488	121,304	102,759	290,688	377,332	149,533
Total from June, 1940	2,372,689	1,909,564	376,201	1,033	1,227,580	139,159	9,850,364	4,198,307	1,737,922	12,285,195	7,340,221	2,950,377

Electric Energy—*July Load Is Up*

Production of Electric Energy for Public Use—In thousands of Kilowatt Hours—Source: Federal Power Commission

	Montana	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Total Mtn.	Washington	Oregon	California	Total Pacific
May	205,605	122,700	26,558	81,677	38,266	265,685	47,694	269,325	1,053,010	698,471	389,494	1,239,465	2,327,430
June	201,687	115,247	29,316	78,842	38,428	280,268	45,862	273,148	1,067,798	697,763	376,026	1,272,391	2,346,180
July	217,075	123,272	34,675	85,943	40,758	322,526	48,909	274,703	1,147,861	704,949	392,453	1,365,434	2,462,836
August	235,592	122,753	35,135	87,053	43,856	264,410	55,787	280,111	1,124,696	701,848	419,192	1,419,201	2,540,241
September	225,227	117,165	23,928	89,863	41,255	276,091	46,832	260,991	1,081,352	780,776	408,871	1,362,769	2,552,416
October	244,685	110,958	20,972	93,091	40,270	300,702	50,762	284,437	1,145,877	821,305	430,335	1,317,501	2,579,141
November	234,174	105,282	20,338	94,670	38,836	279,389	52,025	299,159	1,123,373	806,165	419,929	1,277,015	2,557,109
December	230,276	106,406	20,951	97,429	41,999	294,909	60,995	320,207	1,173,172	960,810	398,186	1,305,850	2,664,846
January, 1944	223,286	94,952	19,417	96,960	42,346	290,005	57,904	331,055	1,155,925	964,314	406,851	1,281,484	2,652,649
February	202,057	84,639	18,022	87,611	37,891	291,969	50,490	314,546	1,087,226	938,634	376,321	1,200,331	2,595,286
March	212,801	104,566	18,822	89,928	40,994	286,847	46,275	324,633	1,124,866	943,429	402,195	1,322,532	2,668,156
April	189,988	122,178	18,793	85,954	42,287	284,140	33,462	262,097	1,038,849	890,599	370,914	1,372,445	2,633,958
May	190,926	112,473	19,454	87,365	41,077	297,189	38,291	284,604	1,071,379	854,064	417,654	1,397,484	2,669,202
June	191,704	104,360	22,250	84,548	42,172	285,599	38,255	271,433	1,071,529	854,031	417,654	1,401,465	2,639,559
July	217,319	127,108	24,384	84,478	44,290	331,476	24,372	256,498	1,112,925	779,929	437,374	1,521,569	2,738,872

Employment—*Gradual Decline Continues*

Estimated Number of Employees in Non-Agricultural Establishments—In Thousands—Source: U. S. Bureau of Labor Statistics

ALL INDUSTRY DIVISIONS

	Montana	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Total Mountain	Washington	Oregon	California	Total Pacific
May, 1943	111	106.6	60.5	280	78.3	118.9	173	47.4	976	643	351	2,694	3,688
June	112	101.3	61.4	285	79.1	116.2	173	47.3	974	655	361	2,726	3,742
July	112	100.4	61.0	284	81.8	112.4	180	44.8	976	673	362	2,734	3,769
August	113	98.4	61.9	287	83.2	108.7	178	41.9	972	665	361	2,776	3,802
September	115	102.0	62.1	290	80.7	107.6	175	44.0	976	675	362	2,717	3,754
October	114	101.4	62.1	288	79.8	109.2	172	42.1	969	667	350	2,702	3,719
November	114	100.5	62.1	282	79.0	111.0	168	43.1	960	666	344	2,691	3,701
December	114	98.8	61.6	279	79.0	111.0	165	41.7	950	666	345	2,696	3,707
January, 1944	110	95.6	60.6	265	76.4	108.4	150	40.4	906	644	334	2,635	3,613
February	109	94.1	60.8	265	76.8	108.6	147	40.0	901	638	333	2,629	3,600
March	109	95.5	59.4	259	76.4	108.2	142	39.9	889	636	332	2,605	3,573
April	110	94.7	59.9	259	77.5	108.7	145	40.6	895	633	330	2,614	3,577
May	110	95.6	61.8	262	78.2	107.9	145	41.5	902	632	331	2,590	3,553
MANUFACTURING													
May	14.2	13.4	3.7	64.0	4.2	13.8	30.8	4.9	149	255	148	1,050	1,453
June	14.4	14.0	3.8	65.0	4.5	13.1	33.7	5.5	154	263	153.7	1,061	1,478
July	14.5	15.2	3.9	67.0	4.7	13.5	40.4	5.2	164	274	157.3	1,080	1,511
August	15.2	14.2	3.9	67.0	4.6	13.4	36.9	5.0	160	271	157.9	1,142	1,571
September	15.2	15.8	3.9	68.5	4.3	13.2	35.8	5.1	162	279	161.3	1,088	1,528
October	15.9	15.7	4.3	69.2	4.3	13.6	36.4	4.8	164	278	150.8	1,066	1,495
November	15.8	14.9	4.5	65.0	4.9	16.5	32.1	5.0	159	277	146.6	1,052	1,476
December	15.0	14.3	4.0	58.6	4.9	16.5	28.2	4.7	146	273	145.0	1,034	1,452
January, 1944	13.9	12.8	3.7	53.7	4.8	15.9	22.4	4.6	132	267	139.1	1,016	1,422
February	13.8	12.6	3.8	53.5	4.8	15.4	20.8	4.5	129	264	136.6	1,008	1,409
March	13.7	13.0	4.0	47.9	4.8	15.7	18.8	4.2	122	262	134.9	987	1,384
April	13.4	13.2	4.2	46.4	4.9	16.4	21.1	3.8	123	255	131.2	978	1,367
May	13.3	14.2	4.1	47.2	4.8	16.3	21.8	3.4	125	258	132.5	954	1,342

Employment levels in the Pacific Coast states in May were 135,000, or 3.6 per cent below a year ago for non-agricultural establishments in general and 111,000, or 7 per cent below in manufacturing. In the mountain states general employment was off 74,000, or 7.5 per cent, but in manufacturing it was 3,000 or 1.1 per cent above May 1943.

Employment in durable goods manufacturing industries in California this July dropped more than 100,000 below the level of a year ago, according to the Division of Labor Statistics. It fell to 616,700 in July from 625,400 in June and 718,300 in July 1943. The decrease of more than 100,000 from a year ago reflects a loss of nearly 60,000 production workers in aircraft and more than 47,000 in shipbuilding. The aircraft industry employed 181,200 wage earners in July compared with 185,800 in June and 240,100 in July of last year. Shipyards (excluding government navy yards) employed 234,500 industrial workers this July contrasted with 239,500 in June and 281,900 in July 1943.

A further loss of employees in shipbuilding and aircraft plants between June and July, however, was more than offset by a seasonal rise in canning, bringing the total number of wage earners in manufacturing industries to 825,900 in July from 808,600 in June. The level this July is 8 per cent below a year ago when 896,900 factory employees were at work in California manufacturing plants.

EMPLOYMENT—DURABLE GOODS INDUSTRIES
(Figures from Calif. Div. of Labor Statistics)

	San Francisco Bay Area	Los Angeles Indus'l Area	Total State
Jan. 1944	221,200	369,200	698,800
February	218,600	363,600	689,600
March	212,100	354,700	670,900
April	205,000	347,900	655,700
May	202,200	339,400	645,100
June	196,700	325,500	625,400
July	192,000	320,900	616,700

Ships—*Transport Program*

Four deliveries of attack transports in August marked the beginning of the new shipbuilding program on the Pacific Coast, with the Victory cargo ships nearly out of the way. September figures will probably show a considerably higher output of the AP 3 and AP 5 models, which are both cargo ships converted to transports. Lack of manpower is thought to be affecting output at about the same rate as in July, when there was a decline of about three ships due apparently to this cause. In addition to the 32 ships delivered in August, there were three wooden tugs. Thirty-nine keels were laid and 41 ships launched.

	Launchings Ships	Deliveries Ships	Thousands of Deadwt. tons
January 1944	76	67	633
February	59	59	585
March	61	73	679
April	66	64	641
May	60	72	693
June	50	55	516
July	58	38	399
August	41	32	295

(Includes destroyer escorts and small aircraft carriers, but not larger naval vessels built by the navy itself. Also includes concrete barges, but not tugs or wooden barges. Tonnage figures from September on are adjusted, previous months unadjusted. Deadweight tons are used as a rough measure of the cargo carrying capacity of the ship. All figures from U. S. Maritime Commission statistical department.)

Aircraft

West Coast airframe plants completed more planes in August than in July, but the total poundage was slightly lower. Figures for the year are as follows:

	No. of Planes	Total Poundage
December, 1943	2,527	30,880,000
January, 1944	2,359	31,892,000
February	2,569	32,469,000
March	2,703	36,015,200
April	2,295	30,993,000
May	2,569	34,234,000
June	2,276	32,284,500
July	1,890*	26,909,100*
August	1,930*	26,391,000*

**Reported complete after modification, instead of on leaving factory, as previously.*

Oil—*Heavier Demands*

Demand for petroleum products in the Pacific Coast territory decreased 85,000 barrels daily in July and 41,000 barrels daily were added to storage, reports the Petroleum Economics Division, U. S. Bureau of Mines. Gas oil and diesel oil demand decreased 25,000 barrels daily and residual fuel oil demand decreased 42,000 barrels daily. There was also a decrease of 17,000 barrels daily in gasoline demand.

Added military requirements to supply the Pacific war theatre have necessitated increasing the production rate in the state for September by 15,000 B/D above the level determined as good operating practice. Despite the present high production in California, it has become necessary to import to the coast from inland points by rail shipments, very substantial quantities of petroleum products. Arrangements are now being made for shipping West Texas crude to the Pacific Coast.

Total demand (domestic demand is not available for publication) for all products for the eight months of 1943 and the first six months of 1944, is shown below.

	All Products (Bbls.) 1943	1944
May	852,000	900,000
June	973,000	969,000
July	918,000	884,000
August	983,000	----------
September	992,000	----------
October	987,000	----------
November	962,000	----------
December	1,022,000	----------
Jan.-July Average	860,000	961,000

Cement—*Less and Less*

Cement production figures reported by the Bureau of Mines (in thousands of barrels) are as follows:

	—California—		Oregon-Wash.		Colo.-Wyom. Mont. Utah-Idaho	
	1943	1944	1943	1944	1943	1944
Feb.	1,561	1,000	446	291	----	----
March	1,740	1,231	446	381	----	----
April	1,680	1,317	417	368	----	----
May	1,701	1,260	501	323	449	206
June	1,597	1,108	474	311	390	249
July	1,482	1,312	461	454	410	237
Year to date	11,645	8,280	2,941	2,645	2,344	1,328

THE TREND

Admiral Vickery of the Maritime Commission says completion of the war with Germany will not affect ship production more than three per cent, consequently West Coast yards obviously will continue busy and will have to face continuing manpower shortage. Rationing of lumber and the passing of the peak of military demand would promise to ease the situation in that industry somewhat, but for the fact that tire shortage for logging trucks is getting worse. Demand for petroleum products decreased about 10 per cent in July, but the future production rate is being stepped up.

Photo-Electric Ray For Safety at Boeing

Despite a safety record of more than two years without an accident on the hydro-presses in the press forming shop of the Boeing Aircraft Company in Seattle, the firm has just completed installation of photo-electric safety devices on the machines as an added precaution.

If a workman accidentally moves within the danger zone where he might be struck by the descending ram or moves a hand where it would be caught between the ram and lower die, he breaks this ray of light, creating an impulse which stops the descending ram and then causes it to rise to its maximum elevation.

This is believed to be the most complete installation of photo-electric safety devices in an industrial press shop. The only press not so equipped in the Boeing-Seattle factory is a five-ton one that is fed from the side by automatic tables and does not present the dangers to workers that hand-fed presses do.

Find Efficiency

War plants in northern Utah have been found by a special investigating committee of the Salt Lake City Chamber of Commerce to be as efficient in their use of manpower as any private industries. Members have inspected the Ogden Ordnance Depot and its Salt Lake branch, the Army Services Supply Depot of Ogden, the Navy Supply Depot at Clearfield, Hill Field, Ft. Douglas and all installations in Tooele County.

OPPORTUNITY SECTION

This widely-read column can help you to sell your used machinery and other used equipment. For rates, write to the Opportunity Section, *Western Industry*, 503 Market Street, San Francisco, California.

LITTLEJOHN-REULAND CORPORATION
Los Angeles, California
Representing
Westinghouse Electric & Manufacturing Co.
INDUSTRIAL AGENTS
With stock of new electric motors and motor control for immediate delivery
★
LITTLEJOHN-REULAND CORPORATION
Rewinding 2855 Santa Fe Avenue Repairing
Jefferson 8255 Los Angeles, Calif. Jefferson 8256

TENITE *an* **EASTMAN PLASTIC**
☆ *Headquarters for Ideas* ☆
ON THE USE OF PLASTICS
For war needs now and for planning postwar products ... send for illustrated booklet describing Tenite applications and properties.
WILSON & GEO. MEYER & CO.
LOS ANGELES SAN FRANCISCO SEATTLE

MODERN PRODUCTION METHODS DEMAND *PURE* CHEMICALS
Because the A. R. Maas Chemical Co. have been manufacturing chemicals for the photographic, petroleum, soap, beverage and other industries for many years and due to our improved facilities and new techniques, we are able to serve you better than ever before.
A. R. *Maas* CHEMICAL CO.
4570 ARDINE STREET, SOUTH GATE, CALIFORNIA
"ARMED FOR CHEMICAL SERVICE"

PLATE GRIPS THAT HOLD
Don't Gripe at Grips— A Downs Grip Never Lets You or the Material Down

Downs Safety Plate Grips will hold with a positive grip in any position. Ideal for lifting or laying material in a horizontal position or for turning plates over without the slightest danger of the grip letting go. Will not damage finished surfaces—easily operated by one man. Available for various plate thicknesses up to 6" and ½ to 10 ton capacities. Write today for illustrated folder No. 380.
DOWNS CRANE & HOIST CO.
MECHANICAL ENGINEERS
540 West Vernon Ave. • Los Angeles 37, Calif.

THE WEST ON ITS WAY

CALIFORNIA

TRAINING STATIONS—$22,000,000 will be spent by the Navy to enlarge and improve air training stations in central California. Oakland will receive $2,120,858; the rest will go to Arcata, Concord, Cotati, Crows Landing, Eureka, Fallon, Hollister, Lake Chabot, Monterey, Pyramid Lake, Santa Rosa, Vernalis and Watsonville.

NAVY DEPOT—Earl Hepple, San Jose, has contract for two overpasses in connection with $19,932,900 program to rebuild and enlarge Port Chicago depot.

OCTANE PROGRAM—Southern California allocated $2,336,606 for 100-octane gasoline and oil production program. At El Segundo, Standard Oil gets $189,000 for new steam boilers, $160,000 for cafeteria building; and General Chemical Co. $102,000 for replacement of rail facilities.

FIBERGLASS FACTORY—Owens-Corning Fiberglas Corp. has post-war plans for a West Coast factory to manufacture Fiberglas for use in various types of insulation, plastics and fire-proof textiles.

BUILDING AND INSTALLATION PROGRAM—California Wire Cloth Corp., Oakland, announces a $500,000 program for installation of largest modern wire looms in the nation at their Oakland factory and also construction and improvements at their South San Francisco mill.

MANUFACTURING PLANT—Oronite Chemical Co., subsidiary of Standard Oil of California, is building a $1,000,000 manufacturing plant in Richmond.

SYRUP MANUFACTURING PLANT—To cost $500,000, will be built by the Pepsi-Cola Company in the metropolitan Oakland area.

S.P. RECONVERSION—Alloychemical Corp. will invest approximately $750,000 in reconversion of Southern Pacific Co.'s steam-electric generator plant in Oakland into largest tartrate and tartaric manufacturing plant in U. S.

WPB PROJECTS—The Los Angeles Area Production Urgency Committee has recommended to the War Production Board 22 projects, totaling $1,200,666.

TELEGRAPH PLANT—Western Union announces plans for $800,000 telegraphic relay center in Oakland, to make that city the center of Western Union activity in the West.

SHELL LABORATORY—A $500,000 agricultural laboratory will be built by Shell Oil Co. on 142 acres at Salida, north of Modesto. Laboratory will conduct experiments in production of spray oils, fertilizers, fungicides, insecticides, soil and grain fumigants and plant hormones.

SHIP CONVERSION—The Maritime Commission has ordered the conversion of six cargo vessels built at the Moore Drydock Co., Oakland, to enable them to transport frozen food. The York Corporation, San Francisco, has the contract for conversion.

MOLASSES PLANT—The Exchange Orange Products Co. of Los Angeles, an affiliate of the California Fruit Growers Exchange, will build a $50,000 addition to its plant at Ontario.

PILOT PLANT—The U. S. Bureau of Mines plans to build a steel alloy pilot plant near Shasta Dam to cost around 5½ million dollars.

FACTORY—H. J. Heinz Company has announced plans to build another factory at an undisclosed site in California.

REPAIR SHOP—Announcement is made of the opening by General Electric Co. of a service shop at 2045 Kettner Blvd., San Diego, for repair of battle-damaged equipment and handling of general maintenance requirements for the Navy.

NEW SUBSIDIARY—Organization of a new subsidiary, the Richmond Petroleum Company of California, has been announced by Standard of California. It will operate all of Standard's wholly owned foreign properties.

STEAM AND OIL SYSTEM—Wickman & Ritter have received a $51,170 contract for the steam and oil system at Kaiser shell plant, Fontana.

NEW PLANT—Butchers & Merchants Refrigeration Co. will build a new plant on a 20,000-sq. ft. site at Southwest Fifth and Jefferson Streets, Oakland.

STORAGE YARD AND DISTRIBUTING CENTER—Steel Form Contracting Co. has bought 22,000 sq. ft. at Southwest 34th and Cypress Streets, Oakland, for storage yard and distributing center.

a NEW NAME for Your Western Cold Drawn Bar Mill

To meet present and anticipated post-war Western demands for cold drawn bars more efficiently, we have sold our steel fabricating and warehouse steel divisions and are now concentrating our full capacity and personnel on the production of cold drawn bars.

To represent more fully the highly specialized nature of the work our plant is now exclusively engaged in, the name of the company has been changed to WESTLAND DRAWN STEEL CO.

There will be no change in plant address, telephone number or personnel. The same experienced engineering, production and sales staff will continue to serve your needs for cold drawn bars. Our plant is fully equipped to produce highest quality carbon and alloy cold drawn bars in all S.A.E. grades in rounds, squares, hexagons and flats.

Westland Drawn Steel Co.

2451 EAST 23rd STREET — PHONE KIMBALL 1211 — LOS ANGELES 11, CALIF.

SAN FRANCISCO 5 — PORTLAND 9 — SEATTLE 4

3 GENERATIONS OF EXPERIENCE TO BACK UP GREENBERG

"TITE-TEST"

BRONZE *Check* VALVES

For "ASSURED RESULTS"!

NOW available through YOUR JOBBERS ... from Vancouver to San Diego ... the name GREENBERG is your Assurance of Quality!

CAT. No. 1776
100 lb. NAVY SPEC. 45V5

CAT. No. 766
150 lb. REGRINDING

FOR STANDARD AND EXTRA HEAVY PRESSURES	
Check Valves	1½" to 10"
Gate Valves	1½" to 10"
Globe, Angle and Cross Valves	1½" to 8"
Hose Valves	1½" to 6"

STABILITY
Since 1854

M. GREENBERG'S SONS

765 FOLSOM STREET ★ SAN FRANCISCO, 7

THE WEST ON ITS WAY

HANGARS AND FACILITIES—War Department has awarded R. J. Daum, Los Angeles, contract for hangars and other facilities at Muroc Army airfield. Cost, $923,803.

EXPANSION—Peerless Engineering Co., manufacturers of machine tools and dies, have moved to larger quarters at 4741 Firestone Blvd., South Gate, from their former location at 228 West 108th St., Los Angeles. Ralph Clark and M. T. Derby are co-partners of the firm.

POSTWAR PLANT—General Electric Co., Schenectady, N. Y., has announced plans for postwar construction of a plant on a 57-acre site in San Jose.

SUPPLY DEPOT—Stockton will be the building site for a Naval supply depot to cost about $20,000,000.

PILOT PLANT—The Texas Co. of Los Angeles plans construction of a pilot plant for hydrogenation of carbon monoxide at their refinery. Estimated cost, $880,827.

PAPER PROCESSING FACILITIES—Pioneer-Flintkote Co., Vernon, will build additional facilities for paper processing, to cost about $750,000.

NEW PLANT—Haberfelde Steel Works will rebuild its plant at Bakersfield. Their former plant was destroyed by fire with a loss of $200,000.

PLANT ADDITION—Dow Chemical Co. have plans for an addition to their styrene plant at Gardena, to produce ethyl-benzine for high-octane gasoline and synthetic rubber. Cost is estimated at $1,796,000.

FOOD PRODUCTS PLANT—Frozen Food Distributors, Inc., will build a $55,000 food products plant at Lowell, Aileen and 57th streets in Oakland.

SUPPLY DEPOT—Preliminary construction work has started on the $20 million naval supply depot on Rough and Ready Island, five miles from Stockton.

DPC AUTHORIZATIONS—Plastic & Rubber Products Co., Los Angeles, $90,000 for equipment at a plant at Dayton, Ohio; and Northrop Aircraft, Inc., Hawthorne, $60,000 increase in contract for additional equipment at plant at Hawthorne; Aerojet Engineering Corp., Pasadena, $240,000 contract increase for additional plant facilities at Azusa.

Don't Let SLIME DEPOSITS

CLOG

Your Air Conditioning Units!

Slime deposits often build up quickly in your air-wash type equipment ... prevent efficient operation of the system. You can remove these troublesome deposits easily by circulating recommended solution of fast-working Oakite Composition No. 22. Slime and other accumulations are quickly, thoroughly removed from the drains, piping, spray heads, pumps.

Then, to help prevent this condition from arising again, add prescribed amount of Oakite Airefiner to recirculating water. This scientifically designed material controls slime formation ... helps keep all lines clean and odor free. FREE booklet gives details.

OAKITE PRODUCTS, INC.

LOS ANGELES (12) ..... 1001 East First St., Tel. Madison 1544
SAN FRANCISCO (7) ..... 115 Townsend St., Tel. Douglas 5640
OAKLAND (7) ..... 1505 Wood St., Tel. Glencourt 2750
SAN DIEGO (1) ..... 310 Fifth Ave., Tel. Franklin 0312
SEATTLE (4) ..... 95 Connecticut St., Tel. Main 1207
PORTLAND (9) ..... 1238 N. W. Glisan St., Tel. Broadway 1281
DENVER (2) ..... 1700 15th St., Tel. Main 3321

OAKITE Buy Bonds for Victory CLEANING

PRIVATE AIRPORT—A. L. Novoteny, Glendale, has approval of Los Angeles County Board of Supervisors and Planning Commission to build a private airport on a 400-acre site at Newhall. Plans call for two hangars, operations office and two 3,000-ft. runways.

DEPARTMENT STORE BUILDING—Plans and specifications are being prepared for postwar building of $2,000,000 new department store in Pasadena, for Bullock's, Inc.

CAFETERIA BUILDING ADDITION—The Austin Co., Los Angeles, has contract for constructing mezzanine floor in cafeteria building at El Segundo for Defense Plant Corp., North American Aviation, Inc. Cost, $50,000.

FACTORY BUILDING—O. E. Smith Corp., Bandini District (Los Angeles Co.) will build a $45,000 factory building. The Austin Co., Los Angeles, has the contract.

OFFICE-STOREROOM BUILDING—Lockheed Aircraft Corp., Burbank, will add a $95,900, 110x116 ft. office and storeroom building to its present facilities.

THEATRE—Fox West Coast Theatres, Los Angeles, are building a $136,000 theatre at Rosecrans and Malaga streets, San Diego.

COLD STORAGE PLANT—Karl Gentry and R. M. Smith of Tulelake and A. M. Collier and Percy Murray of Klamath Falls, Ore., are investing an estimated $100,000 to build a frame building for a cold storage plant on Canby-Hatfield, Tulelake.

PLANT RESTORATION—Reliable Manufacturing Co., Los Angeles, is spending $90,000 to reconstruct fire-damaged plant at 2636 Humboldt Avenue.

SALVAGING CENTER—The Bureau of Yards and Docks, Washington, D.C., has purchased 150 acres of industrial land in Torrance and will erect a material and redistribution center for salvaging radio and electronic equipment. Estimated cost, $5,000,000.

FACTORY BUILDING ADDITION—The Gilro Machine & Stamping Co., Oakland, will erect a structural steel and corrugated iron factory building addition. W. C. Tait, Inc., San Francisco, has the contract.

BETTS SPRING CO.

Manufacturers of

SPRINGS

In San Francisco Since 1868

•

LEAF SPRINGS
For autos, trucks and Tractors

•

COIL SPRINGS
for
Railroad Equipment

•

Locomotive and Heavy Duty Springs

•

Machinery, Pump and Valve Springs

•

Brass, Bronze and Music Wire Springs

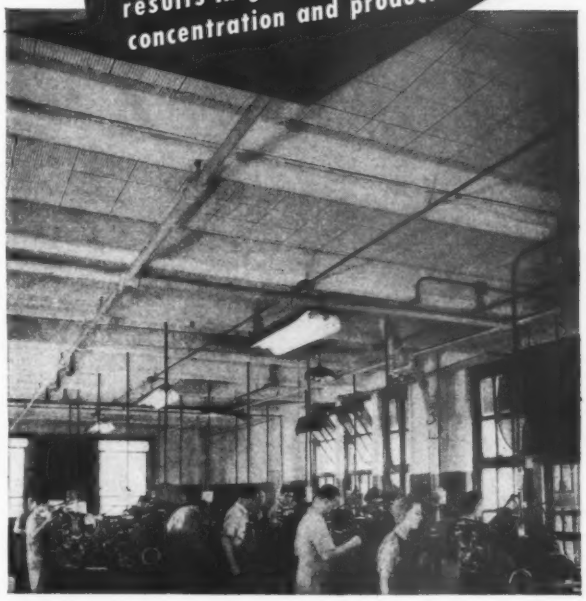
Made to Order by

BETTS SPRING CO.

868 Folsom Street — San Francisco

Phone SUtter 3226

LESS NOISE
in factory and shop
results in greater alertness, concentration and production



Acousti-Celotex Sound Conditioning solves excessive factory noise problems!

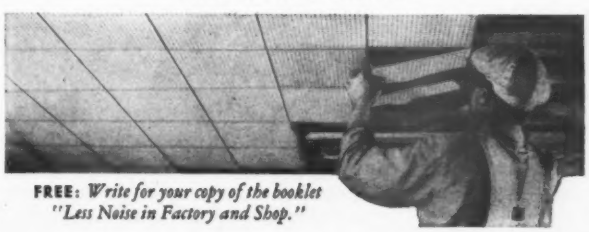
Factory and shop noise is far more devastating than generally recognized... it is claiming a heavy toll in impaired hearing and frayed nerves... it produces fatigue and decreases efficiency.

Acousti-Celotex Sound Conditioning confines noise to an immediate vicinity, softens it, and prevents its spread to other work areas. Call on us to analyze your acoustical problems... prepare a survey and submit recommendations. Our experience from design to installation assures satisfactory performance of every job.

WESTERN ASBESTOS CO.

Acoustical Engineers and Contractors

OAKLAND · SACRAMENTO
SAN FRANCISCO



FREE: *Write for your copy of the booklet "Less Noise in Factory and Shop."*

Consistent Quality

NIKELADIUM

Steel Castings

NIKELADIUM is the name to remember whenever you think of Steel Castings.

It is not just another steel—but a consistently high quality product carefully manufactured under rigid supervision.

NIKELADIUM steel is cast in an established foundry manned by a permanent staff with long training in this specialized field.

Take advantage of NIKELADIUM quality for all your cast steel requirements.

CAST STEEL FLANGED FITTINGS

LOS ANGELES STEEL CASTING COMPANY

2444 So. Alameda St. • Los Angeles, California

FITTINGS SOLD THROUGH DEALERS ONLY

THE WEST ON ITS WAY

LUMBER MILL—Deschutes Lumber Co. is planning construction of a $500,000 lumber mill at Anderson, near Redding.

PIER—Bureau of Yards and Docks, Washington, D. C., awarded Pacific Bridge Co., $2,100,000 contract to construct a pier at the Bethlehem Steel Co., San Francisco.

MAGAZINE STORAGE BUILDING—Barrett and Hilp, San Francisco, have received a $5,296,848 contract to construct a magazine storage building at Inland Storage Area, Port Chicago, Calif.

COLORADO

MANUFACTURING PLANT—Gates Rubber Co. will build a 4-story manufacturing plant, 175 x 185 ft., at 900 So. Broadway, Denver.

LOCOMOTIVE HOUSING AND EQUIPMENT—Preference rating has been given by WPB to Chicago, Burlington & Quincy Railroad for diesel locomotive equipment and housing at Denver, to cost about $573,371.

WASTE RECLAIMING PLANT—The Denver & Rio Grande Western Railroad Co., Denver, awarded Mead & Mount Construction Co., Denver, $61,604 contract for a waste reclaiming plant for them at Pueblo.

IDAHO

STARCH FACTORY—J. R. Simplot, owner and manager of the Simplot dehydrator at Caldwell, has announced plans to build a $60,000 starch factory at Paul.

DPC AUTHORIZATION—J. R. Simplot, Caldwell, $225,000 to provide plant facilities at Caldwell.

Saws Dull in 2 Hours — FOLEY-FILED in 7 Minutes!

"We have been using our Model F-16 Foley Filer daily and it is doing a grand job. Our work today is producing Fairlead assemblies for aircraft. We are using laminated bakelite material, and cutting with hollow ground circular saws.

"Two hours is as long as saw will stand up cutting this material. We were paying $1.00 per dressing to have our saws sharpened. Your automatic filer runs around these saws twice in seven minutes, so it is not difficult for you to see how pleased we are with our purchase."

Yours "Y" truly,
J. M. King Manufacturing Co., Inc.
Philadelphia, Pa.

Here's Tough Sawing and FAST FILING!

The Foley Automatic Saw Filer in this case is saving a saw filing cost of $1.00 per saw every two hours of use. Its accuracy and speed in filing and automatically jointing a saw in one operation cannot be duplicated by hand.

Have You a Tough Sawing and Filing Problem in Your Plant?

With Foley filed saws every tooth is of equal size, height and spacing—saws cut much faster, truer and smoother—do 25% to 40% more work. Foley-filed saws stay sharp longer—filing time is reduced and saw breakage prevented. The Foley Saw Filer sharpens band saws, cross-cut circular saws and band saws.

30 DAY TRIAL OFFER

We offer this privilege on your own work. Actual use of Foley-filed saws is more convincing than anything we can say. Send coupon.

FOLEY *Automatic* SAW FILER

FOLEY MFG. CO. 74 2nd Street, N. E. Minneapolis 13, Minn.

Please send literature on the Foley Automatic Saw Filer and details of your 30-Day Trial.

Name .....

Address .....

TRAILER CONTRACT—A $4,292,000 contract to build 600 twenty-ton machinery hauling trailers and 600 dollies has been awarded to the Olson Manufacturing Co. of Boise.

MUNICIPAL AIRPORT—The state aeronautics engineer has approved construction of an Elk River municipal airport for use of forest fire ranger planes and as an emergency landing field.

MONTANA

ROUNDHOUSE—Great Northern Railway will build a roundhouse at Great Falls to service diesel locomotives. Cost, approximately $200,000.

RICH ORE VEIN—The mining firm of Taylor & Yadon, Elko, report discovery of what is said to be one of the richest copper deposits ever to be found in Nevada—at Queen of the Hills mine. Firm plans to increase production under their 10-year lease.

LOCOMOTIVE SHOP AND ROUNDHOUSE—Austin Co., Seattle, Wash., has contract for construction of a locomotive shop and roundhouse in Livingston for the Northern Pacific Railway Co., Seattle, Wash. WPB has approved priorities for the project.

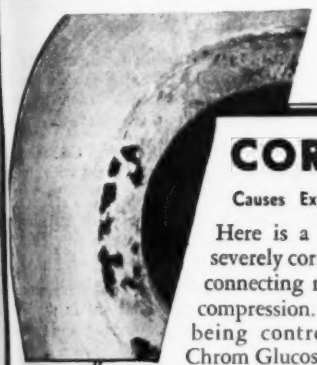
NEW MEXICO

TRAILER CONTRACT—The Eidal Manufacturing Co. of Albuquerque will build several hundred 20-ton low bed front loading semi-trailers for the U. S. Army Engineers. The contracts amount to several million dollars.

OREGON

NEW CORPORATION—The Rogue River Packing Corp., Medford, has been formed to take over the Rogue River Valley Canning Co., 25-year old Southern Oregon fruit and vegetable packer, with A. L. James as plant manager and J. H. Gary as salesmanager.

LOGGING DIVISION—The Gardiner Lumber Co. of Reedsport has established a logging division to carry on woods operations formerly handled by Camp Creek Logging Co. Firm is building 19-mile private logging road from east of Reedsport to Scottsburg.



Visit our Booth No. 148 Nat'l. Chemical Exposition Chicago Coliseum Nov. 15 through 19

CORROSION

Causes Expensive Replacements

Here is a cross section of a severely corroded water cooled connecting rod of a large gas compression. This corrosion is being controlled with our Chrom Glucosates.

This is but one of the many subaqueous corrosion problems that are solved by Haering and Company daily.

Let a Haering field engineer survey your corrosion problems and submit recommendations without any obligation on your part.

Write for "Scale and Corrosion Control in Aqueous Systems."

We Read Water

D. W. HAERING & CO., Inc.

GENERAL OFFICES:

205 West Wacker Drive, Chicago 6, Illinois

Everlasting Fastenings by HARPER Chicago
The Harper organization is known as "Headquarters for Everlasting Fastenings" because it specializes in the manufacture of bolts, nuts, screws, washers, rivets and accessories made of Brass, Naval Bronze, Silicon Bronze, Copper, Monel and Stainless. Nothing in common steel. 4360 Items in stock. Specials made to order. Write for 104 page, 4 color catalog and reference book.
The H. M. Harper Company,
2649 Fletcher St., Chicago 18, Ill.
210 W. 7th St., Los Angeles 14, Cal.
7 Front St., San Francisco 11, Cal.
311 Exchange Bldg., Denver 2, Colo.
Branch Offices in principal cities.

SPEED CARTON AND OTHER STITCHING JOBS

The way to get maximum stitching . . . for container board and a majority of other materials . . . is to install an Acme Silverstitcher. Adjustable single pedal control, and simple, easy-to-use, Silverstitchers enable operators to work rapidly and efficiently. Heavy duty construction . . . reversible vital parts, anti-friction bearings, and ability to handle two gauges of wire without adjustment are just a few of many Silverstitcher features.

Acme Silverstitchers . . . in addition to speeding carton stitching operations . . . are doing time- and money-saving light assembly work. See how Silverstitchers can help you do a quicker, lower cost stitching job. Write today for informative folder.

ACME *SilverStitchers*

There is a size and model for every need.

The wire to use!

Acme Silverstitch stapling wire—for use with the Silverstitchers and other Stitchers, too—comes in 5- and 10-pound, continuous length economy coils. It is true-to-size and temper, is rust-resisting, non-tangling, and makes strong stitches. For faster carton stitching use Silverstitchers and Silverstitch stapling wire.

ACME STEEL COMPANY

432 BRYANT ST., SAN FRANCISCO 7, CAL.

4901 PACIFIC BLVD., LOS ANGELES 11, CAL.

THE WEST ON ITS WAY

EXPANSION—Division of Loose-Wiles Biscuit Co. has purchased Wasco Warehouse Milling Company of The Dalles. Ultimate investment in land, buildings and future improvements resulting from the sale is expected to approach $1,000,000.

BARRACKS VESSELS—Willamette Iron & Steel Corp., Willamette, has received orders from the Navy for six non-self-propelled barracks vessels, each to cost about $1,000,000, first keels to be laid in December.

PLANT MOVED—Plans for extension of sub-assembly operations of Kaiser's Vancouver plant to a new plant being built at The Dalles have been announced.

BUILDING CONVERSION—Revised plans, greatly enlarging the project, have been adopted for conversion of building for Northwestern Ice & Cold Storage Co. of Portland. Former low bid was $65,900.

CHEMICAL PLANT—George H. Buckler Co., Portland, has $50,000 contract for first unit of a chemical plant to be built in Portland by the Chipman Chemical Co. of New Jersey.

DPC AUTHORIZATION—$175,000 to Iron Fireman Mfg. Co., Portland, to provide equipment at a plant at Portland.

IMPROVEMENTS—Northern Pacific Railway is installing 110-ft. turntable and making other improvements totaling about $500,000 at its terminal in Portland.

MILK PROCESSING PLANT—The Dairy Co-operative Association plans construction of a new $100,000 milk processing plant at Salem.

STORAGE PLANT—WPB priorities have been granted the Interstate Associated Creameries, Inc., to construct a $98,998 assembly and storage plant for butter and cheese products in Portland.

UTAH

HEALTH CENTER BUILDING—P. H. Paulsen Co., Salt Lake City, has contract to construct $73,260 health center building for the University of Utah at Salt Lake City.

OFFICE AND WAREHOUSE—Arnold Machinery Co., Salt Lake City, is preparing plans for an office and warehouse on Rio Grande Ave. and Second St., So., Salt Lake City. Cost will be $100,000.

COMPANY PURCHASE—Rheem Manufacturing Company, Chicago, announces purchase of Stokermatic Company of Salt Lake City, manufacturers of automatic coal stokers. Rheem makes automatic water heaters.

SULPHURIC ACID PLANT—Garfield Chemical & Mfg. Co., Salt Lake City, has WPB preference ratings for a sulphuric acid plant with capacity of 150 tons per day. Estimated cost, $1,000,000.

POWER PLANT ADDITION—Plans are under way for installing an additional unit in the diesel power plant of the Logan City Corp. at Logan at a cost of about $198,000.

AUXILIARY STATIONS—In Churchill County, Texas, construction is under way on one of the largest naval auxiliary stations in the West. The $5,000,000 aviation facility will include a bombing and gunnery range.

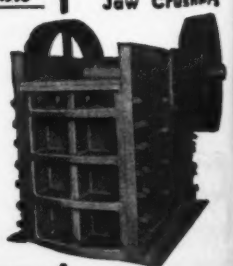
GRUENDLER CRAFTSMANSHIP

Serving Industry over 50 Years

Heavy Duty Jaw Crushers

Peak Production at Low Cost

Manufacturers of Limestone Pulverizers, Gravel or Rock Crushing and Screening Plants, Conveying and Screening Equipment, Chemical Grinders and Mixers.



Write for Data and Illustrated BULLETINS about our Lifetime Crushing Equipment

GRUENDLER

CRUSHER and PULVERIZER CO.

2915-17 North Market St., ST. LOUIS (6), MO.

150 to 200 tons per Hr. Crushing Steam Shovel Rock to 5" and 6" minus. Size 24 x 42 wt. 54,200 lbs.

TRANSSHIPMENT DEPOT—Sound Construction & Engineering Co. and Peter Kiewit Sons Co., Seattle, have been awarded a contract by 13th Naval District at $2,424,346 for the construction of a new naval storage and transshipment depot near Bangor on the Hood Canal.

WASHINGTON

NEW CORPORATION—A new $100,000 corporation, with headquarters in Spokane, has been formed under the name of John Fees Company, to manufacture mechanical loaders and other equipment. John F. Fees and James A. Brown of Spokane head the company.

STEEL BARGES—Pointer-Willamette Company's Edmonds plant has a Navy contract for 20 additional steel barges, each 110 ft. in length, to cost $1,000,000. At present the company is working on 16 similar barges.

BOEING EXPANSION—Boeing Aircraft Company will expand its branch plant program to include Hoquiam. Two buildings will be remodeled for the plant.

STEEL TUGS—Bellingham Iron Works, Inc., Bellingham, already at work on eight steel tugs for the Navy, have received a contract for 10 additional 65-ft. steel tugs.

ORDNANCE CONTRACT—Fentron Steel Works, Bellingham, is preparing for conversion and tooling of its plant, having received a contract for ordnance.

NAVY TUGS—Winslow Marine Railway & Shipbuilding Co. of Seattle will build 12 steel tugs for the Navy, at a cost of $1,000,000.

AIRCRAFT CARRIERS—A new type of aircraft carrier will be built by Todd Pacific Shipyards, Tacoma, for the Navy, the contract amounting to $250,000,000. Company also has $30,000,000 contract for two destroyer tenders to be built in its Seattle yards.

PORT IMPROVEMENTS—The port of Bellingham plans improvement of port facilities to include cold storage plants for fish and farm products, totaling $900,000.

DAIRY BUILDING—Gaasland Construction Co., Seattle, has contract for fireproof dairy products building for Dairy Products Co., Bellingham. Building will be 70x102 ft., cost $75,000. A second story is planned after the war.

WYOMING

OIL RESEARCH—U. S. Bureau of Mines plans $460,000 shale oil research and development station on the University of Wyoming campus at Laramie.

OIL REFINERY—Ohio Oil Co., Findlay, Ohio, has received WPB approval for expansion of its oil refinery to increase capacity 150 per cent.

DEMOLITION PUMPING RANGE—The U. S. District Engineer Office announces that plans have been completed for demolition pumping range at Casper Army Airfield, Casper, Wyo.

For Plant Conversion or New Planning

THE *Lowe-Stoddard* CO.

ENGINEERS & CONSULTANTS

MECHANICAL • ELECTRICAL • INDUSTRIAL

315 ARCHITECTS BUILDING

LOS ANGELES 13 • Michigan 1133

SAVERITE

Protective Materials

XZIT • BRICKSEAL • SERVIRON

"171" • EUREKA • PETROFLO

XZIT FIRE-SCALE AND SOOT ERADICATOR

It's easy to remove fire-scale and soot when you use XZIT. No chipping or scraping needed. Just feed XZIT into the fire box while the boiler is in operation. That's all. XZIT will do the rest because it reduces the harmful deposits chemically so that they are drawn off by natural draft or blowing. Use XZIT *regularly* to keep your boilers at top operating efficiency.

BRICKSEAL REFRACTORY COATING

Prevent untimely and costly failure of your boiler refractories. Simply paint or spray them with BRICKSEAL—the highly glazed, monolithic coating that protects against spalling, slagging, clinkering, flame abrasion and sudden changes of temperature. Remains semi-plastic until boiler cools. Will not crack, peel or blister. Expands and contracts with the wall. Ask for sample and demonstration.

SERVIRON INTERIOR BOILER AND TANK COAT

Provides unexcelled protection against corrosion, pitting, rust and fungus growth. Remains permanently plastic. Will not crack. Stretches and contracts with the material it protects. Recommended for coating all types of storage tanks and boiler drums. Waterproofs wood and concrete tanks. Easy to apply. Economical.

SAVERITE ENGINEERING COMPANY

5800 S. Hoover St., Los Angeles 44, Calif., TWinoaks 1-171

ANCHORAGE, ALASKA	Elmer Fern, P.O. Box 728
SEATTLE	W. H. Rober, 1016 1st Ave. S.—ELliott 5007
PORTLAND	K. B. Bonsall, 1233 N.W. 12th Ave.—BR. 0561
CHICO	Don L. Buckman, P.O. Box 278—2298-W
SAN FRANCISCO	Walter Harris, 200 Davis St.—DOuglas 8590

WESTERN TRADE WINDS

NEWS ABOUT THOSE WHO DISTRIBUTE AND SELL INDUSTRIAL EQUIPMENT AND MATERIALS

James S. Rose

Ilg Electric Ventilating Co. has moved its San Francisco branch office to larger headquarters at 826 Sharon Bldg., 55 New Montgomery St., San Francisco 5, Calif. Manager of the new branch office is **James S. Rose,** former supervisory methods engineer in charge of heating and ventilation for Curtiss-Wright Co., Buffalo, N. Y. A graduate of Virginia Military Institute, with a civil engineering degree, Rose was for two years employed in Ilg's Cleveland office.

James E. Rowe, formerly sales engineer for Western Gear Works, Lynwood, California, is now in business as **Engineering Development Co.,** 7519 Santa Fe Avenue, Huntington Park, specializing in gear design.

Pacific Railway Equipment Company of Los Angeles announces that their corporate name has been changed to "PRECO, Inc." The only change is in name and the set-up as far as personnel, management, business, etc. will remain the same.

The manufacturing and distribution facilities of **Wade Manufacturing Company,** Elgin, Ill., makers of Wade drains and plumbing specialties, and those of **Portland Iron Works,** Portland, Ore., have been consolidated. Stocks will be maintained at Portland, and at Los Angeles and San Francisco, Calif., to serve the west coast states, as well as similar stocks to serve the central western, eastern and southern states.

Precision Bearings, Inc., with main offices in Los Angeles, California, announce the election of the following officers: **Harold R. Swanton,** president; **L. H. Travis,** treasurer and assistant secretary, and **Edward C. Lennon,** secretary. **Odbert P. Wilson** resigned as president and was elected chairman of the board of directors.

Alan P. Cline, 116 New Montgomery St., San Francisco 5, Calif., has been appointed representative for **Avery Adhesives,** Los Angeles, Calif., makers of Kum-Kleen production stickers.

Clay H. Hollister, Jr. has been appointed director of public relations at **Adel Precision Products Corp.,** of Burbank, Calif., and Huntington, W. Va. Hollister has had extensive experience in merchandising and distribution with Libbey-Owens-Ford, Fruit of the Loom, and Marshall Field & Co.

Garrett Supply Company, 3844 South Santa Fe, Los Angeles 11, has been appointed Carboloy distributor for the Southern California-Arizona area. This move supplements direct service operations of Carboloy Company's branch at 5905 South Pacific Blvd., Los Angeles, which pioneered the use of carbide on the West Coast as far back as 1929.

The **Rock-Tred Corporation** of Chicago, manufacturers of industrial flooring and other maintenance items, has recently appointed the **Hill Corporation,** 214 Front St., San Francisco, as distributors of Rock-Tred products, with **Earl A. Norton** as president.

Lloyd E. Starkweather has become vice-president in charge of operations in Southern California for the **Leo J. Meyberg Co.,** making his headquarters in Los Angeles. Starkweather succeeds **M. G. Sues,** vice president since 1940, who has resigned to head his own business in Los Angeles.

The Morse Twist Drill & Machine Company of New Bedford, Mass., announces the opening of their Pacific Coast store at 1180 Folsom St., San Francisco 3, Calif., to supplement Morse distributors' stocks in taking care of immediate needs and emergency orders.

Fred A. Koepf

G. T. Lundquist

Link Belt Company announces the promotion of **Fred A. Koepf** and **G. T. Lundquist,** Koepf, until recently assistant manager at Los Angeles, becomes district manager for the northwest with headquarters at Seattle, Wash. Lundquist, formerly assistant to **H. V. Eastling,** vice-president and sales manager, San Francisco, succeeds Koepf as assistant manager. Koepf has been with Link-Belt since 1923 and Lundquist since 1925.

The **American School of Aircraft Instruments** and the **United Flying Schools of America** have been acquired by the **Aero-Crafts Corp.,** Los Angeles, owners of the Aero Industries Technical Institute—West Coast aeronautical engineering and mechanics training institution. **Herbert W. Hartley,** continuing as president of the American School of Aircraft Instruments, also becomes president of Aero Tech and United Flying Schools and vice-president of American School of Aircraft Instruments.

Rude and Fuller Bearing Company with offices at 1050 So. Grand Ave., Los Angeles, has been formed to enter the Southern California field as a bearing specialist house. **Carle Slocum** and **Dick Gordon,** formerly with Precision Bearings, Inc., will head the new firm, which is offering a complete all-bearing service to the industrial and fleet replacement business in California and is carrying the well-known lines of Precision Bearings, Inc.

The **Carborundum Company** announces a new branch sales office in San Francisco. **W. T. McCargo** has been named district sales manager.

Ralph O. Anderson has been made district manager of the new West Central, Rocky Mountain district of the **Norton Co.,** Worcester, Mass. His headquarters will be Denver, Colo.

Machinery Sales Co. of San Francisco and Los Angeles are newly appointed California distributors for J. G. Blount Co. of Everett, Mass. The firm manufactures chucking lathes, buffers and polishers, motor grinders and the like.

Harold W. Pearcy was recently appointed vice-president in charge of purchasing for the **Percival Steel & Supply Co.,** Los Angeles, industrial distributor.

Victor Equipment Company has been appointed California distributor for the Ransome line of welding positioning equipment manufactured by the Ransome Machinery Company, subsidiary of Worthington Pump and Machinery Corp. of New Jersey.

Herman Tenzler, president of the **Northwest Door Co.,** Tacoma, Wash., has recently acquired an interest in the **Carson Lumber Co.,** Carson, Wash., and is now also president of that organization.

Tube Turns, Inc., Louisville, Ky., announces the re-opening of its Los Angeles office, Van Nuys building., with **James H. Withers** in charge.

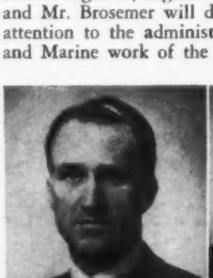
Smith Booth Usher announces that **E. F. Copenhafer** will be the new manager of their Arizona branch, with offices at 1756 Grand Ave., Phoenix. Former Arizona manager, **George Hainley,** goes to Los Angeles to the sales department of the Machine Tool Division.

J. M. Cook is the new manager of the San Francisco district sales office of **Cutler-Hammer, Inc.,** pioneer electrical manufacturers of Milwaukee, Wis.

Mark Noble has been appointed Pacific Coast sales representative of **Pullman-Standard Car Manufacturing Co.,** succeeding the late **Latham McMullin.**

R. J. McNeely, sales manager of the **Hoffman Radio Corp.,** Los Angeles, for several years, but since the war its plant superintendent, has returned to his sales post with the organization in liaison with the engineering department and the postwar committee in coordinating postwar plans. **Eugene N. Knox** becomes plant superintendent assisted by **S. L. Spraggins.** The new chief inspector will be **Allen Frame.**

R. M. Alvord, commercial vice-president, Pacific district, **General Electric Company,** announce the appointment of **R. O. Brosemer** and **O. A. Gustafson** as assistant district engineers. Mr. Gustafson will aid **Walter C. Smith,** district engineer, in general administrative duties and Mr. Brosemer will devote the bulk of his attention to the administration of the Federal and Marine work of the division.



O. A. Gustafson

R. O. Brosemer

THE SHOWCASE

57

Floor Crane—Shown below is a three ton capacity floor crane, both hand and power operated, with a lifting range of 9 ft. 4 in. on the standard model. Here are its features: Hydraulic power application to lifting beam. Power model powered by two 6 volt heavy duty storage batteries in series operating a heavy duty 6 pole, 12 volt motor. Flexibility of cantilever and adjustable sheave permit practical convenient operation in foundries, machine shops, garages or factories. Multi-cylinder pump on hand operated unit has manual control for speed or power. *Roger Equipment Co., Portland, Ore.*

58

Molding Machine—A new 16-ounce capacity plastics injection molding machine has been announced for injection molding of thermoplastic materials. It incorporates many new design features and represents one size of a new postwar line of the manufacturer's all-hydraulic injection molding machines. *The Hydraulic Press Manufacturing Co., Mount Gilead, Ohio.*

59

Paint Stripper—According to the manufacturer, the hosing off of an application of Turco Stripper L-780 leaves a clean, paint free, water break free surface requiring very little after treatment to prepare for further processing. This material is non-corrosive on metals, non-inflammable, safe on wood, with no tendency to cause warping. Recommended for use on any aircraft part or assembly and for the removal of zinc chromate primer as well as other paint coatings. Due to its water soluble characteristics, brushes and cleaning equipment can be cleaned for reuse quickly and completely by a vigorous churning in a bucket of water. *Turco Products, Inc., Los Angeles, Calif.*

60

Soup and Coffee Carriers—Made for capacities of 10, 8, 5 and 3 gallons, this portable vacuum unit called the "AerVoid" will keep beverages hot for hours, even when transported long distances in the coldest weather. This high-vacuum insulation is achieved through durable construction; outer and inner shells are made of 20-gauge, cold-rolled steel. The AerVoid is the only vacuum insulated liquid carrier with a detachable side faucet. Thin liquids, such as coffee, may be dispensed through this faucet, while heavier liquids and semi-solids may be taken out through the wide neck opening. For use of Army, Navy, Coast Guard, industrial war plants, hospitals, and other establishments. *Vacuum Can Co., Chicago, Ill.*

61

Descaling Attachment—Victor announces a new descaling attachment for use on any standard Victor welding torch butt. (Torch butts may also be had for owners of other brands of equipment.) Advantages: Spiral mixer and gas proportioner which assures freedom from backfire or flash-back; aluminum cooling section incorporated at nozzle head; replaceable skid shoes with properly shaped lugs. Comes in 4-in. and 6-in. ribbon flame widths. *Victor Equipment Co., San Francisco, Calif.*

62

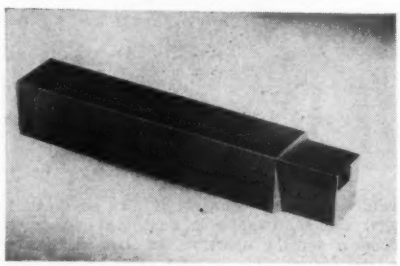
Portable Rivet Forge—For use in confined spaces, a new gas-fired rivet heating forge has been designed with a heating space of 8 x 7 in. It weighs 85 pounds and is fitted with lifting hooks for easy moving even when hot. The unit operates on compressed air and natural gas but can also be furnished for operation on light oils. It is supplied complete with burner and necessary control valves. Bottom lining of chrome refractory will not slag with rivets and novel design permits easy charging and removing of rivets without discomfort to the operator. *James H. Knapp Co., Inc., Los Angeles, Calif.*

63

Diesel Air Filter—The Far-Air Diesel air filter for Diesel engine intakes is entirely new in design, weighs 46½ pounds and has a capacity of 2,200 to 3,200 CFM. Its four separate filter panels are of herringbone channeled fine wire screen 2⅛ in. thick and easily removed for cleaning or changing while the unit is in operation. Delivered complete and ready for attachment. *Farr Company, Los Angeles, Calif.*

64

Smaller Turning Tools—A ¼-inch size tool has been added to Carboloy's line of style 4 and style 7 right and left hand standard turning tools, in line with the increasing use of carbide tipped tools on small high speed high precision lathes, as well as in boring bars and in tool holders for fine work. These new tools carry a tip measuring 3/32 in. thick, 3/16 in. wide by 5/16 in. long. The new standards available from stock for steel cutting and for all other materials have a ¼ in. square shank 1½ in. long. *Carboloy Company, Inc., Detroit, Mich.*



65

All-Plastic Goggle—A new, close-fitting non-fogging industrial safety goggle is being made by the Watchemoket Optical Co., Inc. Of shatterproof methacrylate, the goggle is highly resistant to pitting caused by sparks. Other features are: Sturdy construction, reinforced high-brass clip at bridge, replaceable lens and extreme light weight. *Pacific Coast distributors, California Goggle Co., Los Angeles, Calif.*

66

Type Holder—The Mercury interchangeable type holder is designed to accommodate four type sizes and up to 20 characters. In the mass production of parts for aircraft, etc., this new tool saves time and eliminates the usual errors and problems of stamping by enabling the user to stamp the entire number on the part with a single blow of the hammer. It is made of machined steel and can be had in four standard sizes. *Mercury Metal Die and Letter Co., Los Angeles, Calif.*

67

Surface Inspection Process—"Faxfilm" is the name given to a new non-photographic process of surface inspection and comparison. By dissolving one side of a clear plastic film and pressing it into a surface, a replica may be obtained which can be projected as a three dimensional image up to 100 diameters or more with an ordinary slide projector. The operation takes less than one minute and the small piece of film, which is mounted in a 2-in. square cardboard frame for the purpose of projection, may be filed for future record. *Rex D. McDill, Cleveland, Ohio.*

Yessir! I'm Interested in Anything New That Will Help Me Do a BETTER JOB.

WESTERN INDUSTRY
503 Market Street
San Francisco

Please send me information on the following items:.....

.....

.....

.....

Name..... *Title*.....

Company.....

Address.....

68

Lift Truck—With a working speed of up to 12 miles an hour either forward or backward, ability to turn in its own length of 117 inches, an overall width of only 60 inches, and a capacity of 7500 pounds, the new dual purpose

Hyster "75" Truck can now meet both short distance transportation and stacking and tiering problems. Streamlined in design, comfortable for the operator and with conventional automobile controls, the new unit easily negotiates rough floors or outside unimproved storage areas. *Hyster Company, Portland, Oregon.*

69

Motorized Press—All steel construction and simple hydraulic control are the outstanding features of Reimuller's new motorized 10 and 20 ton gap style presses. Among other operations they can be used for production line work of marking, forming, notching, pressing, broaching, and assembling. A hand lever hydraulic valve controls the ram movement through feed, hold or return position. Other features: Hollow large area ram for holding punches, etc., lapped ram, packless design, twin pressure gauges. *Reimuller Brothers Co., Franklin Park, Ill.*

70

Drill-Sharpening Jig—A new easily operated jig which the operator claims will enable anyone to grind a drill to a factory finish in 25 seconds. Mounted next to a grinding wheel, this jig gives a perfect cutting edge which cannot be obtained by hand sharpening. It handles drills from 3/22 in. to 1-1/16 in. in diameter and up to 11 in. in length. *A. D. McBurney, Los Angeles, Calif.*

71

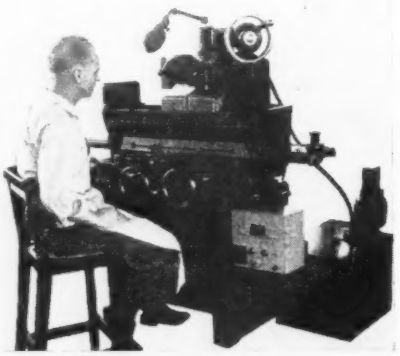
Voltage Testers—The manufacturer introduces in the Model SDP-2 Knopp voltage tester a new exclusive feature—a neon-light polarity indicator in the base of the tester which not only shows the polarity of a d-c circuit under test but also enables one to differentiate readily between a-c and rectifier d-c current as well as between a-c and pure d-c. Protection against moisture, dirt and dust is provided by a non-breakable, transparent plastic window covering the voltage indicator slot. *Electrical Facilities, Inc., Oakland, Calif.*

72

Carbon Removal Tool—Announcement is made of a tool which removes carbon from the air intake ports of a GM 2-cycle diesel engine in a matter of minutes and without the necessity of removing the pistons or pulling the cylinder sleeves. The head is so designed that when it is lowered into position its two rows of 8 punches are automatically aligned with the ports to be cleaned, requiring only 4 turns of the handle to punch the carbon out of all 64 ports in each sleeve. *Stuart Engineering Division, Chicago, Ill.*

73

Surface Grinder—The new model G-1 Do-All surface grinder built for tool room use and light production work has a dependable accuracy even in the hands of a novice. With standard grit wheels, the machine produces a fine finish to within six micro inches. Extreme rigidity is found in the scientific balancing of the 2,200-pound weight of the machine. This great weight,



while absorbing vibration, is used to greatest advantage at all vital points. Features permitting comfort for the operator are stressed. *Continental Machines, Inc., Minneapolis, Minn.*

74

Portable Infra-Red Unit—Fostoria's model P-7-IR is designed to provide portable radiant equipment to facilitate baking, drying, dehydrating and preheating operations. The flexibility of

this model permits it to be used in singular or multiple assemblies; and adjustable features of the cross arm on the upright and the reflector yoke allow the radiant energy to be directed at various angles from a height of 18 in. to 6 ft. Many uses have been found for the P-7-IR in industrial plants, motor repair shops, aboard ships, at aircraft bases and in public and private institutions. *Fostoria Pressed Steel Corp., Fostoria, Ohio.*

75

Multiple Tool Holder—A new adjustable tool holder with a vise grip for use in lathes, shapers and planers makes possible the use of any of four or more sizes of tool bits in the same holder. It is especially suitable for tool bits of brittle and expensive alloys because even distribution of pressure prevents breakage. And its ability to hold very short tool bits makes for economy. *Robert H. Clark Co., Beverly Hills, Calif.*

76

Truck and Drain Rack—A new automatic-loading combination truck and drain rack features detachable handles so that when the unit is in use as a drain rack or as a temporary storage rack handles can be detached for economy in floor space. Truck-drain rack may be had with or without handles and detachable handles are supplied separately. *Palmer-Shile Company, Detroit, Mich.*

"AERO-CPLG"
flexible
hose assemblies
design determines
dependability

INDUSTRIAL APPLICATIONS DEMAND
THE SAME . . . DESIGN . . . EXACTNESS
to extreme DETAIL . . . "KNOW-HOW" of
assembly that AAF contractors demand.

PROVEN by AAF salvage records
for first half of 1944.

99.5% PERFECT ASSEMBLIES out of 407,556
LOW, MEDIUM and HIGH PRESSURE HYDRAULIC and OXYGEN Assemblies.

AERO-COUPLING CORPORATION
Manufacturers of Flexible Hose Assemblies
1051 N. Hollywood Way, Burbank, California

YOURS FOR THE ASKING

1538

Hour Meters—Catalog No. 20 covers "hour meters," specialized instruments which record actual running hours on individual types of engines, actually serve as speedometers on stationary engines. Catalog illustrates standard and specially designed hour meters, gives specifications, prices, information for ordering, suggested uses on motorized construction equipment and machinery. *Durant Manufacturing Company, Milwaukee, Wisc.*

1539

Petroleum Pumps— Four-page bulletin in two colors describes and illustrates with pictures and diagrams Blackmer's pumps for the petroleum industry. Shows bulk station pumps, truck pumps and rotary hand pumps. Specifications are given on some units. Full page of pictures demonstrates typical installations. *Blackmer Pump Company, Grand Rapids, Mich.*

You owe it to yourself to keep posted—only the efficient business survives under the strain and pressure of the war effort. Literature listed in these columns may be just the answer to your need for greater production, substitute materials or knowledge of how to care for your equipment. Just drop a note to Western Industry, 503 Market St., San Francisco, and copies will be forwarded to you. If you do not use business letterheads, please name your company affiliation.

1540

Drill Posts— Folder describing a new development in drilling operations—portable electric magnetic drill posts. Three models of the drill post are pictured and described. Advantages are given as follows: Can be carried anywhere and used on the job; drills in any position; saves much time and labor by eliminating needless welding, chipping and grinding. *Mechanical Research Co., Portland, Ore.*

1541

pH Control—Kelite announces their latest bulletin (No. 14), an illustrated summary of the materials and processes developed for aviation maintenance through pH control. Printed in two colors, durably bound, amply and clearly illustrated, the bulletin shows how Kelite cleaning materials and methods may be used for all aircraft servicing. Announced also are revised editions of two other Kelite bulletins: Bulletin No. 8, "Anodizing," and Bulletin No. 9, "Cadmium Plating." *Kelite Products, Inc., Los Angeles, Calif.*

1542

New Welding Method— Comprehensive 48-page booklet introduces "Fleet Welding," new arc welding technique which increases speed and cuts costs as much as 59 per cent. Some of subjects covered are: Effect of penetration on welding costs; using "arc force" to increase welding speed; general information for use of procedure tables; complete information with corrective suggestions on the procedures used for butt welds, fillet and lap welds. In addition to many photographs and drawings, the booklet carries 17 procedure tables, listing plate thickness, electrode size, current, etc. *Lincoln Electric Company, Cleveland, Ohio.*

1543

Floor Hardener and Dust-Proofer—Four-page, two-color folder provides complete instructions for the application of Flint-Tred, a new concrete floor hardener and dust-proofer. The folder describes Flint-Tred as a crystalline substance which, when dissolved in water and flushed over any ordinary concrete floor, will form a smooth, hard, dust-free surface. The substance, says its manufacturer, actually seals the dust down into the floor, solidifies loose cement particles and brings the top surface to a flint-hard consistency. *Rock-Tred Corporation, Chicago, Ill.*

1544

Storage Battery Welding — Illustrated 12-page booklet answers questions about the Company's new process of welding with storage batteries as a power source. Deals with some 35 major questions relating to costs, operation, maintenance, design, installation, etc., of battery welding equipment as developed for the various forms of resistance welding. *Progressive Welder Co., Detroit, Mich.*

1545

Liquid Handling— Twelve-page booklet in two colors describes Bowser's various types of liquid storage handling and dispensing equipment, as well as supplementary equipment such as recording meters for liquids. Pictures are provided and full details given on the self-measuring pump; six different storage and dispensing units; non-measuring portable wheel tank; portable storage and filtration unit; and portable storage and metering unit. *Bowser, Inc., Fort Wayne, Ind.*

1546

Metal Conveyor Belts—Cyclone's new metal Conveyor Belt Catalog No. 3 gives much helpful information to conveyor belt users, pictures and describes many Cyclone conveyor belts such as the right-and-left alternating weave belt; heavy duty and special purpose belts; flat wire belts; and the new flex-grid belt. Four full pages of pictures show Cyclone conveyor belt installations in many different industries. *Cyclone Fence Division, American Steel and Wire Company, Waukegan, Ill.*

1547

Cleaning Unit — Illustrated and descriptive folder A-444 describing Hoffman's all-purpose portable cleaning unit, the Hoffco-Vac. Advantages of the unit, such as the fact that it is self-contained and may be handled by one man, are pointed out and further emphasized through the use of a skeleton diagram. Also available is Catalog A-182 which contains general description of Hoffman heavy duty vacuum cleaning equipment. *United States Hoffman Machinery Corporation, New York, N. Y.*

1548

Forgeability of Steels — Late publication, "Evaluating the Forgeability of Steels"—a 78-page book containing for the first time recommended forging temperatures of 68 steels as determined by the hot twist test conducted in Timken's laboratories. The apparatus and procedures used are described and the results of tests on various steels interpreted. *Steel and Tube Division, The Timken Roller Bearing Co., Canton, Ohio.*

(Cont'd on Page 82)

Looking ahead to post war in-plant feeding

The AerVoiD Mobile Cafeteria

Tomorrow's feeding of workers is being considered today by forward-looking managements.

Fewer workers, as War contracts run out, will necessitate simpler less-expensive ways of providing substantial balanced hot meals to workers, with lower payroll and operating costs and less food wastage.

The AerVoiD Mobile Cafeteria has been planned by practical factory-feeding engineers to meet both present and post-war requirements for less-expensive worker feeding setups. Pick-up or dish-up service with fewer operators, yet fast and adequate . . . good, hearty hot meals serviced in a new low-cost way!

VACUUM CAN COMPANY
25 S. HOYNE AVE. • CHICAGO 12, ILL.

Sample Menus
showing the substantial balanced hot meals that can be serviced with
The Sensational
"AerVoiD"
IN-PLANT FACTORY FEEDING UNIT for DECENTRALIZED HOT MEALS

Write for sample menu Bulletin B

Shows balanced hot meals that can be served with the AerVoiD Mobile Cafeteria

68

Lift Truck—With a working speed of up to 12 miles an hour either forward or backward, ability to turn in its own length of 117 inches, an overall width of only 60 inches, and a capacity of 7500 pounds, the new dual purpose

Hyster "75" Truck can now meet both short distance transportation and stacking and tiering problems. Streamlined in design, comfortable for the operator and with conventional automobile controls, the new unit easily negotiates rough floors or outside unimproved storage areas. *Hyster Company, Portland, Oregon.*

69

Motorized Press—All steel construction and simple hydraulic control are the outstanding features of Reimuller's new motorized 10 and 20 ton gap style presses. Among other operations they can be used for production line work of marking, forming, notching, pressing, broaching, and assembling. A hand lever hydraulic valve controls the ram movement through feed, hold or return position. Other features: Hollow large area ram for holding punches, etc., lapped ram, packless design, twin pressure gauges. *Reimuller Brothers Co., Franklin Park, Ill.*

70

Drill-Sharpening Jig—A new easily operated jig which the operator claims will enable anyone to grind a drill to a factory finish in 25 seconds. Mounted next to a grinding wheel, this jig gives a perfect cutting edge which cannot be obtained by hand sharpening. It handles drills from 3/22 in. to 1-1/16 in. in diameter and up to 11 in. in length. *A. D. McBurney, Los Angeles, Calif.*

71

Voltage Testers—The manufacturer introduces in the Model SDP-2 Knopp voltage tester a new exclusive feature—a neon-light polarity indicator in the base of the tester which not only shows the polarity of a d-c circuit under test but also enables one to differentiate readily between a-c and rectifier d-c current as well as between a-c and pure d-c. Protection against moisture, dirt and dust is provided by a non-breakable, transparent plastic window covering the voltage indicator slot. *Electrical Facilities, Inc., Oakland, Calif.*

72

Carbon Removal Tool—Announcement is made of a tool which removes carbon from the air intake ports of a GM 2-cycle diesel engine in a matter of minutes and without the necessity of removing the pistons or pulling the cylinder sleeves. The head is so designed that when it is lowered into position its two rows of 8 punches are automatically aligned with the ports to be cleaned, requiring only 4 turns of the handle to punch the carbon out of all 64 ports in each sleeve. *Stuart Engineering Division, Chicago, Ill.*

73

Surface Grinder—The new model G-1 Do-All surface grinder built for tool room use and light production work has a dependable accuracy even in the hands of a novice. With standard grit wheels, the machine produces a fine finish to within six micro inches. Extreme rigidity is found in the scientific balancing of the 2,200-pound weight of the machine. This great weight,

while absorbing vibration, is used to greatest advantage at all vital points. Features permitting comfort for the operator are stressed. *Continental Machines, Inc., Minneapolis, Minn.*

74

Portable Infra-Red Unit—Fostoria's model P-7-IR is designed to provide portable radiant equipment to facilitate baking, drying, dehydrating and preheating operations. The flexibility of

this model permits it to be used in singular or multiple assemblies; and adjustable features of the cross arm on the upright and the reflector yoke allow the radiant energy to be directed at various angles from a height of 18 in. to 6 ft. Many uses have been found for the P-7-IR in industrial plants, motor repair shops, aboard ships, at aircraft bases and in public and private institutions. *Fostoria Pressed Steel Corp., Fostoria, Ohio.*

75

Multiple Tool Holder—A new adjustable tool holder with a vise grip for use in lathes, shapers and planers makes possible the use of any of four or more sizes of tool bits in the same holder. It is especially suitable for tool bits of brittle and expensive alloys because even distribution of pressure prevents breakage. And its ability to hold very short tool bits makes for economy. *Robert H. Clark Co., Beverly Hills, Calif.*

76

Truck and Drain Rack—A new automatic-loading combination truck and drain rack features detachable handles so that when the unit is in use as a drain rack or as a temporary storage rack handles can be detached for economy in floor space. Truck-drain rack may be had with or without handles and detachable handles are supplied separately. *Palmer-Shile Company, Detroit, Mich.*

"AERO-CPLG"
flexible
hose assemblies
design determines
dependability

INDUSTRIAL APPLICATIONS DEMAND
THE SAME . . . DESIGN . . . EXACTNESS
to extreme DETAIL . . . "KNOW-HOW" of
assembly that AAF contractors demand.

PROVEN by AAF salvage records
for first half of 1944.

99.5% PERFECT ASSEMBLIES out of 407,556
LOW, MEDIUM and HIGH PRESSURE HY-
DRAULIC and OXYGEN Assemblies.

AERO-COUPLING CORPORATION
Manufacturers of Flexible Hose Assemblies
1051 N. Hollywood Way, Burbank, California

YOURS FOR THE ASKING

1538

Hour Meters—Catalog No. 20 covers "hour meters," specialized instruments which record actual running hours on individual types of engines, actually serve as speedometers on stationary engines. Catalog illustrates standard and specially designed hour meters, gives specifications, prices, information for ordering, suggested uses on motorized construction equipment and machinery. *Durant Manufacturing Company, Milwaukee, Wisc.*

1539

Petroleum Pumps— Four-page bulletin in two colors describes and illustrates with pictures and diagrams Blackmer's pumps for the petroleum industry. Shows bulk station pumps, truck pumps and rotary hand pumps. Specifications are given on some units. Full page of pictures demonstrates typical installations. *Blackmer Pump Company, Grand Rapids, Mich.*

You owe it to yourself to keep posted—only the efficient business survives under the strain and pressure of the war effort. Literature listed in these columns may be just the answer to your need for greater production, substitute materials or knowledge of how to care for your equipment. Just drop a note to Western Industry, 503 Market St., San Francisco, and copies will be forwarded to you. If you do not use business letterheads, please name your company affiliation.

1540

Drill Posts— Folder describing a new development in drilling operations—portable electric magnetic drill posts. Three models of the drill post are pictured and described. Advantages are given as follows: Can be carried anywhere and used on the job; drills in any position; saves much time and labor by eliminating needless welding, chipping and grinding. *Mechanical Research Co., Portland, Ore.*

1541

pH Control—Kelite announces their latest bulletin (No. 14), an illustrated summary of the materials and processes developed for aviation maintenance through pH control. Printed in two colors, durably bound, amply and clearly illustrated, the bulletin shows how Kelite cleaning materials and methods may be used for all aircraft servicing. Announced also are revised editions of two other Kelite bulletins: Bulletin No. 8, "Anodizing," and Bulletin No. 9, "Cadmium Plating." *Kelite Products, Inc., Los Angeles, Calif.*

1542

New Welding Method— Comprehensive 48-page booklet introduces "Fleet Welding," new arc welding technique which increases speed and cuts costs as much as 59 per cent. Some of subjects covered are: Effect of penetration on welding costs; using "arc force" to increase welding speed; general information for use of procedure tables; complete information with corrective suggestions on the procedures used for butt welds, fillet and lap welds. In addition to many photographs and drawings, the booklet carries 17 procedure tables, listing plate thickness, electrode size, current, etc. *Lincoln Electric Company, Cleveland, Ohio.*

1543

Floor Hardener and Dust-Proofer—Four-page, two-color folder provides complete instructions for the application of Flint-Tred, a new concrete floor hardener and dust-proofer. The folder describes Flint-Tred as a crystalline substance which, when dissolved in water and flushed over any ordinary concrete floor, will form a smooth, hard, dust-free surface. The substance, says its manufacturer, actually seals the dust down into the floor, solidifies loose cement particles and brings the top surface to a flint-hard consistency. *Rock-Tred Corporation, Chicago, Ill.*

1544

Storage Battery Welding — Illustrated 12-page booklet answers questions about the Company's new process of welding with storage batteries as a power source. Deals with some 35 major questions relating to costs, operation, maintenance, design, installation, etc., of battery welding equipment as developed for the various forms of resistance welding. *Progressive Welder Co., Detroit, Mich.*

1545

Liquid Handling— Twelve-page booklet in two colors describes Bowser's various types of liquid storage handling and dispensing equipment, as well as supplementary equipment such as recording meters for liquids. Pictures are provided and full details given on the self-measuring pump; six different storage and dispensing units; non-measuring portable wheel tank; portable storage and filtration unit; and portable storage and metering unit. *Bowser, Inc., Fort Wayne, Ind.*

1546

Metal Conveyor Belts—Cyclone's new metal Conveyor Belt Catalog No. 3 gives much helpful information to conveyor belt users, pictures and describes many Cyclone conveyor belts such as the right-and-left alternating weave belt; heavy duty and special purpose belts; flat wire belts; and the new flex-grid belt. Four full pages of pictures show Cyclone conveyor belt installations in many different industries. *Cyclone Fence Division, American Steel and Wire Company, Waukegan, Ill.*

1547

Cleaning Unit — Illustrated and descriptive folder A-444 describing Hoffman's all-purpose portable cleaning unit, the Hoffco-Vac. Advantages of the unit, such as the fact that it is self-contained and may be handled by one man, are pointed out and further emphasized through the use of a skeleton diagram. Also available is Catalog A-182 which contains general description of Hoffman heavy duty vacuum cleaning equipment. *United States Hoffman Machinery Corporation, New York, N. Y.*

1548

Forgeability of Steels — Late publication, "Evaluating the Forgeability of Steels"—a 78-page book containing for the first time recommended forging temperatures of 68 steels as determined by the hot twist test conducted in Timken's laboratories. The apparatus and procedures used are described and the results of tests on various steels interpreted. *Steel and Tube Division, The Timken Roller Bearing Co., Canton, Ohio.*

(Cont'd on Page 82)

Looking ahead to post war in-plant feeding

The AerVoiD Mobile Cafeteria

Tomorrow's feeding of workers is being considered today by forward-looking managements.

Fewer workers, as War contracts run out, will necessitate simpler less-expensive ways of providing substantial balanced hot meals to workers, with lower payroll and operating costs and less food wastage.

The AerVoiD Mobile Cafeteria has been planned by practical factory-feeding engineers to meet both present and post-war requirements for less-expensive worker feeding setups. Pick-up or dish-up service with fewer operators, yet fast and adequate . . . good, hearty hot meals serviced in a new low-cost way!

VACUUM CAN COMPANY
25 S. HOYNE AVE. • CHICAGO 12, ILL.

Sample Menus
showing the substantial, balanced, hot meals that can be serviced with
The Sensational
"AerVoiD"
IN-PLANT FACTORY FEEDING UNIT for DECENTRALIZED HOT MEALS

Write for sample menu Bulletin R

Shows balanced hot meals that can be served with the AerVoiD Mobile Cafeteria

YOURS FOR THE ASKING *(From Pg. 81)*

1549

Fastenings—Catalog and data book on self-locking nuts that is practically an engineering handbook. Available for engineers, designers, and purchasing men. The book covers the hex, anchor and clinch types of nuts, and illustrates suggestions for typical applications which will help designers and purchasing men plan their postwar products so as to eliminate the dangers of loose bolted connections. Handy tabulations on common fastening problems will save design engineers much time and figuring. *Elastic Stop Nut Corporation of America, Union, N. J.*

1550

Scales— A new and factual catalog presenting the full story of the entire Kron Scale line from dormant and portable platform types of special counting, batching, tensile strength and dynometer models. Fully illustrated with complete specifications and dimensions. Prepared specifically for use of buyers of precision industrial equipment. *Yale and Towne Manufacturing Co., Philadelphia, Pa.*

1551

Postwar Tax Plan— Just issued in booklet form is CED's postwar federal tax plan for high employment. The Committee recommends that federal taxes be substantially cut after the war and that main reliance for funds to run the Federal government be placed on the personal income tax. It points out that all taxes have to come eventually from the pockets of individuals, and that only a part of taxes on corporate earnings come from the stockholders because these taxes come also from the pockets of the consumer and wage-earner through higher prices and a tendency to keep down wages. *Committee for Economic Development, New York, N. Y.*

1552

Pumps—A new catalog of general purpose self-priming centrifugal pumps designed to fit a wide range of pumping needs in industry, agriculture, and marine field, and general utility. Contains information on selecting the right pump for the job, and includes tables on water friction, suction lifts, and pressure conversion. Bulletin No. 447, on Rex Speed Prime Pumps issued by *Chain Belt Co., Milwaukee, Wisc.*

1553

Powder Metallurgy—A 168-page book designed to provide industry with a complete knowledge of the wide variety of powder metal bearings and parts now being produced by Chrysler. The book includes a 23-page engineering section covering such subjects as specifications, design features and practice, shaft clearance, load rating charts, tolerance data, drawings and tables on chamfers and fillets, machining methods, etc. Listing of more than 13,000 available sizes of bearings and parts. *Chrysler Corp., Detrot, Mich.*

1554

Protective Clothing—A 16-page, two-color catalog on featherweight and heavy duty protective garments made of the solvent-proof transparent plastic called "compar." These are designed for the protection of men and women workers whose duties bring them in contact with grease, organic solvents, gas fumes or dust. *Resistoflex Corporation, Belleville, N. J.*

1555

Electric Unit Heaters—The Company's line of electric unit heaters is illustrated and described in Bulletin 44-U. These include standard sizes for ceiling, wall or post suspension, although six smaller sizes are described as portable or suspension types. Tables give dimenion, weights, and B.T.U.'s. A special section of the book is devoted to details of the finned aluminum heating elements. *Electric Air Heater Co., Mishawaka, Ind.*

1556

Tap Reconditioner—How to keep taps in top condition is fully described in this four-page folder (Bulletin No. DTR-3), illustrating how the new Detroit tap reconditioner performs the functions of chamfering, spiral pointing, spiral point polishing, and sharpening the entire tap by grinding the full length of its flutes. *Detroit Tap & Tool Company, Detroit, Mich.*

1557

Radiation Pyrometers—Bulletin No. P1202 describes in detail the principle of operation of the Bristol radiation pyrometer. Its use with pyrometers of both the potentionmeter and millivoltmeter type is also described; and information regarding ranges, mountings, and accessories is included. *The Bristol Co., Waterbury, Conn.*

1558

Welding Movie—New two-part, all-color 16-mm sound movie, "The Story of A-C Welding," available to all G-E arc-welding specialists and distributors who will arrange to exhibit it on request. The film, which runs 35 minutes, tells in detail the story of a-c arc welding. Expert welders demonstrate in many scenes the speed, flexibility and efficiency of the a-c process. Laboratory demonstrations and close-ups of the arc and molten steel show how the arc-blow is eliminated by the use of alternating current. More technical points are dealt with in animated sketches. *General Electric Company, San Francisco, Calif.*

1559

Contract Termination and Cut Backs—"Contractor's Guide" contains excellent information on procedure involved when contracts are terminated, with emphasis on quick and efficient termination, and the clearance of war plants for other work. "Adjustment of Production Cut-Backs" is a graphically illustrated booklet showing the necessity for coordinated handling of cut-backs by joint planning of industry, labor, the press, army service forces, and government. Both are issued by *The Army Service Forces.*

1560

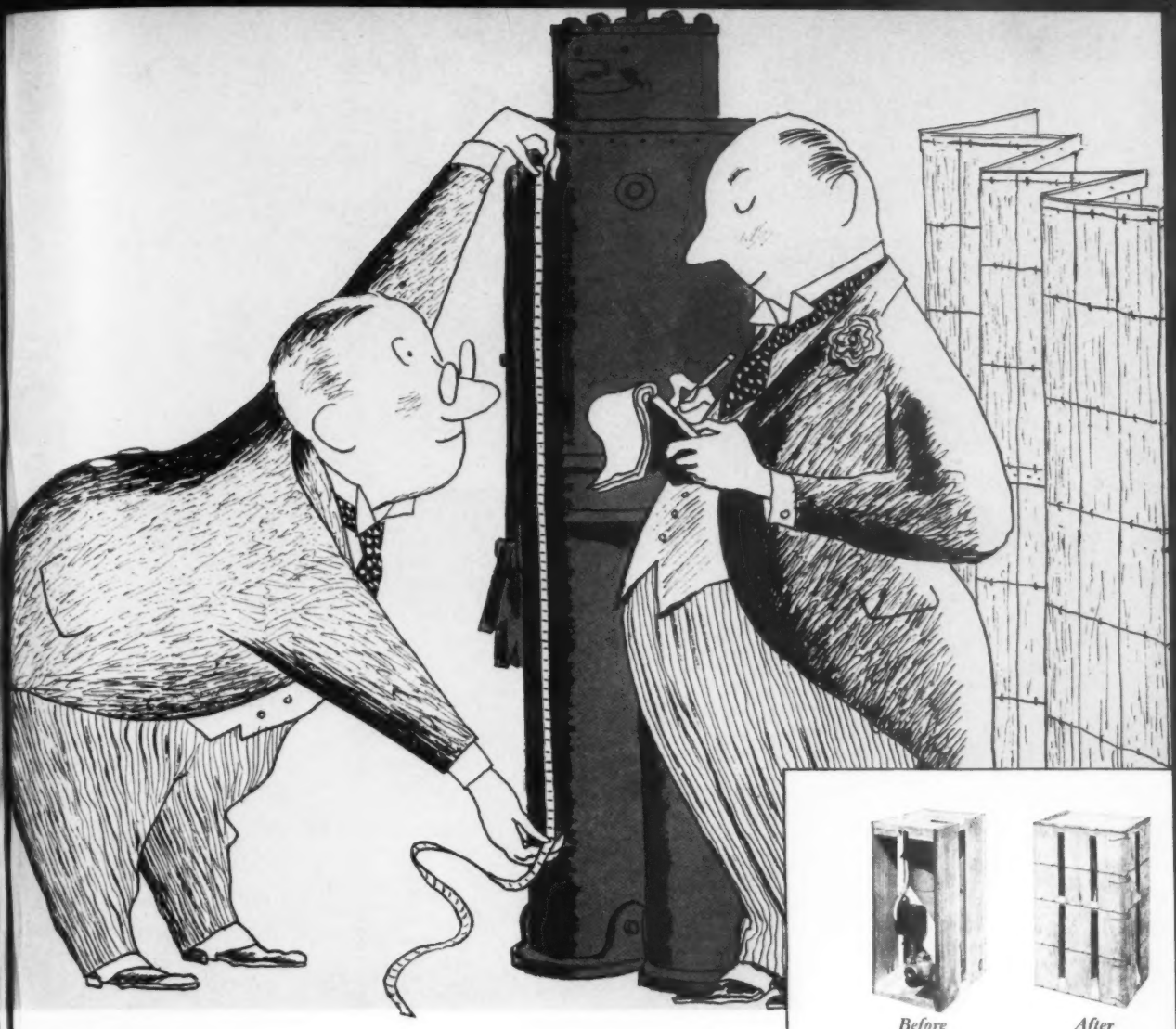
Water Conditioner—Folder, designed for those interested in water treatment, describes K.A.T. water conditioner as an anti-scale, anti-corrosion, anti-foam treatment for water stills and evaporators. The folder shows how savings in fuel, labor, metal, production and maintenance may be effected through use of this conditioner. *American K. A. T. Corporation, New York, N. Y.*

1561

Plastic Coatings — An illustrated catalog showing the many uses of Amercoat Plastic Coatings in a wide range of industries, and including a comprehensive list of organic and inorganic materials, foods, and beverages, equipment and structures that are now being protected against corrosion or contamination. *American Pipe and Construction Co., Los Angeles, Calif.*

INDEX TO ADVERTISERS THIS ISSUE

	Page
Acme Steel Company	76
Aero-Coupling Corporation	80
American Forge Company	4
Baldwin-Duckworth Division Chain Belt Company	20
Betts Spring Company	73
Blaw-Knox Company	3
California Barrel Company, Ltd.	3rd Cover
California Spring Company, Inc.	58
Chain Belt Company	22
Cleveland Worm & Gear Co.	64
Crane Company	14
Crocker First Nat'l Bank	60
Curtis Pneumatic Machinery Co.	49
Diagraph-Bradley Stencil Machine Corp.	44
Downs Crane & Hoist Company	70
Eccles & Davies Machinery Co.	56
Engineering Products Company	52
Fafnir Bearing Company	16
Fairbanks Morse & Company	24
Fishstrom Sales Company	58
Flexible Steel Lacing Co.	56
Foley Manufacturing Co.	74
Friden Calculating Machine Co.	41
Fruehauf Trailer Company	43
Goodall Rubber Company	65
Greenberg's M., Sons	72
Greundler Crusher & Pulverizer Co.	76
Haering, D. W., & Company, Inc.	75
Harper, H. M., Company	75
Hendy, Joshua, Iron Works	11
Hughes-Keenan Company	51
Independent Pneumatic Tool Co.	18 & 39
Industrial Equipment Company	46
Isaacson Iron Works	40
Johnson Gear & Mfg. Company, Ltd.	66
Johnston, A. P., Company	63
Jorgensen, Earle M., Company	19
Kelite Products, Inc.	15
Kingwell Bros., Ltd.	59
Kobe, Inc.	7
Link-Belt Company, The	12
Littlejohn-Reuland Corp.	70
Los Angeles Steel Casting Co.	74
Lowe-Stoddard Company	77
Maas, A. R., Chemical Co.	70
Marine Engineering & Supply Co.	63
McCarty Company, The	8
Meyer, Wilson & Geo., Company	70
Oakite Products, Inc.	72
Pacific Screw Products Corp.	48
Payne Furnace & Supply Co.	67
Pioneer Rubber Company, The	61
Pioneer Rubber Mills	45
Plant Rubber & Asbestos Works	55
Rapids-Standard Company	66
Ready Power Company	61
Roebling, John A., & Sons	13
Saverite Engineering Company	77
Schnier, I. F., Company	60
Schrader, F. W., Company	40
Sisalkraft Company	47
Skilsaw, Inc.	21
Smoot-Holman Company	62
Spencer & Morris Company	64
Standard Conveyor Company	57
Standard Oil Company	26
Stauffer Chemical Company	54
Stephens-Adamson Mfg. Co.	4th Cover
Stuart Oxygen Company	67
Sullivan Machinery Company	9
Sylvania Electric Products, Inc.	23
Thomas Truck & Caster Company	37
Tide Water Associated Oil Co.	53
Tubbs Cordage Company	65
Turco Products, Inc.	17
Union Oil Company	6
United Autographic Register Co.	10
Vacuum Can Company	81
Victor Equipment Company	2nd Cover
Walworth California Company	42
Western Asbestos Company	73
Westland Drawn Steel Co.	71
Wrigley, Jr., William Company	50



tailored to your product

Container engineering which makes use of the fundamental design principles of Cabco Allbound Crates and Boxes can result in a streamlining of your entire packing and shipping task. Routines can be changed so as to short-cut many of the costly operations and packing can become integral with your production line.

For example: Box-making machinery may be eliminated because Cabcos can be set up, contents packed and containers closed with your bare hands, no hammer, no nails – no machinery needed. You get Cabco Allbound Containers fully assembled—in most all cases they are complete in one piece—sides, ends, bottom and top, yet they store flat in your warehouse—occupy minimum space.

Because they are scientifically designed and thoroughly engineered to fit the product, Cabcos usually reduce tare weight considerably. They are light in weight yet extremely strong due to their unique construction—thin wood veneer parts stitched with steel wire and reinforced at the strain points.

Let Cabco container engineers show you what Cabco Allbound Crates or Boxes can do toward cutting your shipping cost, at the same time providing a better looking package. No obligation, of course.

CABCO

ALLBOUND Crates and Boxes

Before *After*

45.4% REDUCTION IN TARE WEIGHT

Here Cabco Container Engineering helped save dollars for a pump manufacturer. As formerly crated, the shipping weight for these units was 22 pounds. While in Cabco Allbound Crates the shipping weight is reduced to 12 pounds.

Time is saved in crating because the Cabco Allbound Crate is completely prefabricated and can be set up and packed quickly. Where formerly it required a half hour to crate them, these pumps can be made ready for shipment in a matter of five minutes.

Remember: this is just one example in many which Cabco Engineers can show you. Investigate now . . . no cost or obligation.

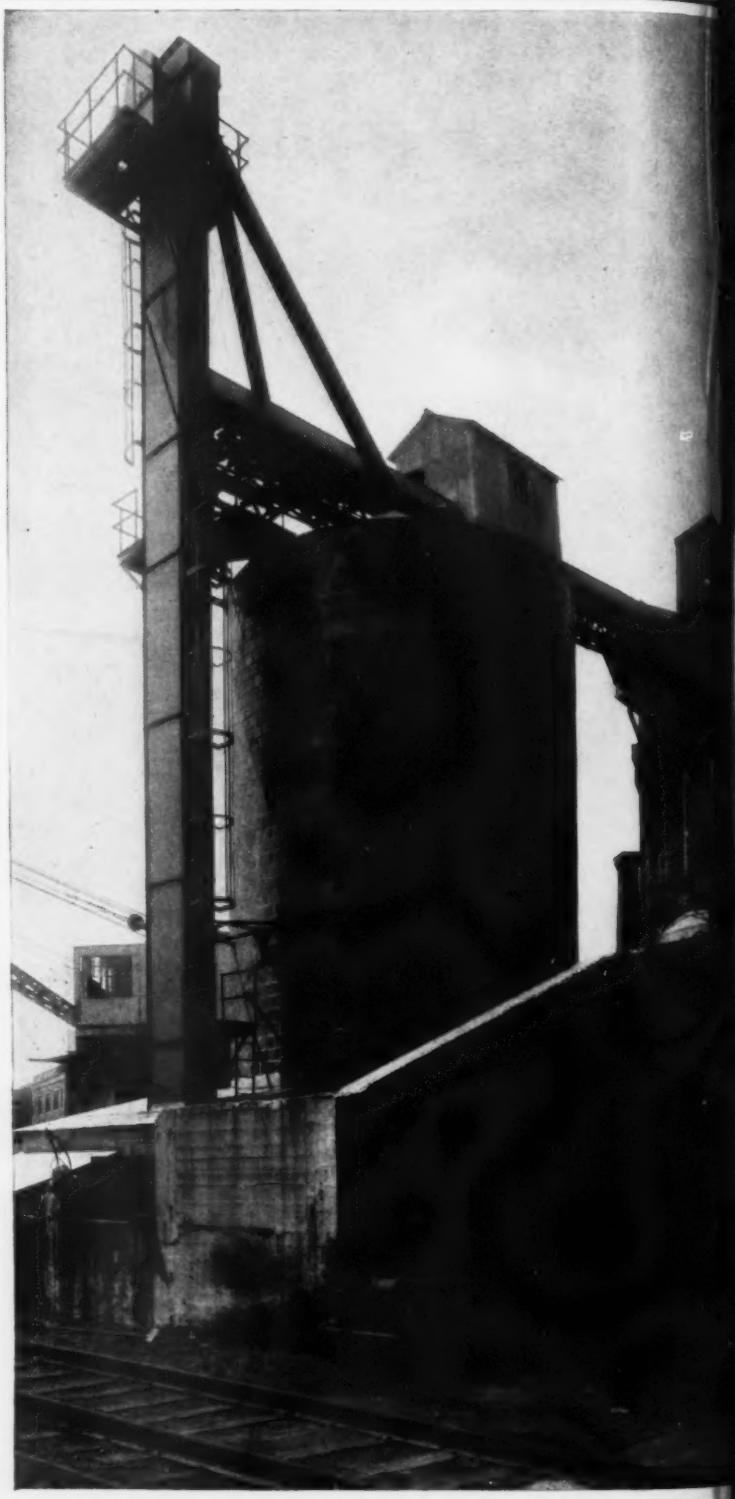
California Barrel Company, Ltd.

100 Bush Street, San Francisco 4, California
2581 E. Eighth St., Los Angeles 23, California
501 Dooley Building, Salt Lake City 1, Utah

WESTERN INDUSTRY
503 MARKET STREET
SAN FRANCISCO, CALIF.
FORM 3547
POSTMASTER:
If addressee has removed, notify sender on Form 3547, postage for which is guaranteed.
503 Market Street, San Francisco

SEC. 562, P. L. & R.
U. S. POSTAGE
PAID
San Francisco, Calif.
Permit No. 4167

Everywhere it's S-A *Specialized Engineering*



Examples of efficient Stephens-Adamson coal elevating and conveying systems are found in power plants, large and small, throughout the country.

Each installation presented individual problems which had to be solved and special conditions which had to be met before the lowest possible handling costs were assured.

Each installation was planned by S-A Engineers, long experienced in the design of efficient, economical Coal Handling systems, and put into operation by conveyors, elevators, feeders, etc., selected from S-A's complete line of manufactured handling units.

S-A recommends the *right method* and furnishes the *right equipment.*

Consult us now on your plans for improving or expanding your coal handling system.

This S-A system features a double track hopper and a pan feeder feeding coal to a double roll crusher. Bucket elevator elevates coal to 2-way discharge spout to send coal either to boiler bunkers via belt conveyor or to storage silo for later reclaiming.

582 Market St., San Francisco 4, Cal.
1203 Western Ave., Seattle 1, Wash.

STEPHENS-ADAMSON MFG. CO.
2227 E. 37th ST., LOS ANGELES 11, CALIF.

219 Dooly Block, Salt Lake City
1007 E. Burnside St., Portland 14